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TRANSACTIONS

OF THE

AMERICAN ASSOCIATION

OF

OBSTETRICIANS AND GYNECOLOGISTS.

VOL. XVII.

FOR THE YEAR 1904.

NEW YORK:

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1905

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AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

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NOTE.

The Association does not hold itself responsible for the views enunciated in the papers and discussions published in this volume.

WILLIAM WARREN POTTER, *Secretary,*

284 Franklin Street, Buffalo.

[Minutes and discussions stenographically reported by William Whitford, Chicago, Ill.]

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CONSTITUTION AND BY-LAWS

OF THE

AMERICAN ASSOCIATION

OF

OBSTETRICIANS AND GYNECOLOGISTS,

TOGETHER WITH

MINUTES OF THE SEVENTEENTH ANNUAL MEETING.

AMERICAN ASSOCIATION

OF

OBSTETRICIANS AND GYNECOLOGISTS.

CONSTITUTION.

I. The name of this Association shall be THE AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

II. Its object shall be the cultivation and promotion of knowledge in whatever relates to Abdominal Surgery, Obstetrics, and Gynecology.

MEMBERS.

III. The members of this Association shall consist of Ordinary Fellows, Honorary Fellows, and Corresponding Fellows.

The Ordinary Fellows shall not exceed one hundred and fifty in number.

The Honorary Fellows shall not exceed ten American and twenty-five foreign.

Candidates shall be proposed to the Executive Council at least one month before the first day of meeting, by two Fellows, and shall be balloted for at the annual meting, a list of names having been sent to every Fellow with the notification of the meeting.

A two-thirds vote in the affirmative of all the members present shall be necessary to elect—fifteen Fellows at least being in attendance.

All candidates for active fellowship shall submit to the Executive Council at least one month before the annual meeting, an original paper relating to Abdominal Surgery, Obstetrics, or Gynecology.

HONORARY FELLOWS.

IV. The power of nominating Honorary Fellows shall be vested in the Executive Council.

Their election shall take place in the same manner as that of Ordinary Fellows.

They shall enjoy all the privileges of Ordinary Fellows, excepting to vote or hold office, but shall not be required to pay any fee.

CORRESPONDING FELLOWS.

V. The Corresponding Fellows shall be recommended by the Executive Council and elected by the Association.

They shall enjoy all the privileges of Ordinary Fellows, excepting to vote or hold office, and shall be entitled to a copy of the annual TRANSACTIONS.

They shall pay an annual fee of five dollars.

OFFICERS.

VI. The officers of this Association shall be a President, two Vice-Presidents, a Secretary, a Treasurer, and six Executive Councillors.

The nomination of all officers shall be made in open session at the business meeting, and the election shall be by ballot.

The first five officers shall enter upon their duties immediately before the adjournment of the meeting at which they shall be elected, and shall hold office for one year.

["At the election next succeeding the adoption of these laws, the full number of Executive Councillors shall be elected; two for a term of three years, two for a term of two years, and two for a term of one year.

"At every subsequent election two Councillors shall be elected for a term of three years, and shall continue in office until their successors shall have been elected and shall have qualified."][1]

Any vacancy occurring during the recess may be filled temporarily by the Executive Council.

ANNUAL MEETINGS.

VII. The time and place of holding the annual meeting shall be determined by the Association or may be committed to the Executive Council each time before adjournment.

It shall continue for three days, unless otherwise ordered by vote of the Association.

[1] Amendment adopted September 21, 1898.

AMENDMENTS.

VIII. This Constitution may be amended by a two-thirds vote of all the Fellows present at the annual meeting: *provided*, that notice of the proposed amendment shall have been given in writing at the annual meeting next preceding: and *provided, further*, that such notice shall have been printed in the notification of the meeting at which the vote is to be taken.

AMERICAN ASSOCIATION

OF

OBSTETRICIANS AND GYNECOLOGISTS.

BY-LAWS.

THE PRESIDING OFFICER.

I. The President, or in his absence one of the Vice-Presidents, shall preside at all meetings, and perform such other duties as ordinarily pertain to the Chair.

The presiding officer shall be *ex-officio* chairman of the Executive Council, but shall vote therein only in case of a tie.

SECRETARY.

II. The Secretary shall attend and keep a record of all meetings of the Association and of the Executive Council, of which latter he shall be *ex-officio* clerk, and shall be entitled to vote therein.

He shall collect all moneys due from the members, and shall pay the same over to the Treasurer, taking his receipt therefor.

He shall supervise and conduct all correspondence of the Association; he shall superintend the publication of the TRANSACTIONS under the direction of the Executive Council, and shall perform all the ordinary duties of his office.

He shall be the custodian of the seal, books, and records of the Association.

TREASURER.

III. The Treasurer shall receive all moneys from the Secretary, pay all bills, and render an account thereof at the annual meetings, when an Auditing Committee shall be appointed to examine his accounts and vouchers.

EXECUTIVE COUNCIL.

IV. The Executive Council shall meet as often as the interests of the Association may require. The President, or any three members may call a meeting, and a majority shall constitute a quorum.

It shall have the management of the affairs of the Association, subject to the action of the house at its annual meetings.

It shall have control of the publications of the Association, with full power to accept or reject papers or discussions.

It shall have control of the arrangements for the annual meetings, and shall determine the order of the reading of papers.

It shall constitute a court of inquiry for the investigation of all charges against members for offences involving law or honor; and it shall have the sole power of moving the expulsion of any Fellow.

ORDER OF BUSINESS.

V. The Order of Business at the annual meetings of the Association shall be as follows:

1. General meeting at 10 o'clock A. M.
   - *a.* Reports of Committees on Scientific Questions.
   - *b.* Reading of Papers and Discussion of the same.
2. One Business Meeting shall be held at half-past nine o'clock A. M. on the first day of the session, and another on the evening of the second day (unless otherwise ordered by vote), at which only the Fellows of the Association shall be present. At these meetings the Secretary's Record shall be read; the Treasurer's Accounts submitted; the Reports of Committees on other than scientific subjects offered; and all Miscellaneous Business transacted.

PAPERS.

VI. The titles of all papers to be read at any annual meeting shall be furnished to the Secretary *not later* than one month before the first day of the meeting.

No paper shall be read before the Association that has already been published, or that has been read before any other body.

Not more than thirty minutes shall be occupied in reading any paper before the Association.

Abstracts of all papers read should be furnished to the Secretary at the meeting.

All papers read before the Association shall become its sole property if accepted for publication; and the Executive Council may decline to publish any paper not handed to the Secretary *complete* before the final adjournment of the annual meeting.

QUORUM.

VII. The Fellows present shall constitute a quorum for all business, excepting the admission of new Fellows or acting upon amendments to the Constitution, when not less than fifteen Fellows must be present.

DECORUM.

VIII. No remarks reflecting upon the personal or professional character of any Fellow shall be in order at any meeting, except when introduced by the Executive Council.

FINANCE.

IX. Each Fellow on admission shall pay an initiation fee of twenty-five dollars, which shall include his dues for the first year.

Every Fellow shall pay *in advance* (*i. e.*, at the beginning of each fiscal year) the sum of twenty dollars annually thereafter.

[A fiscal year includes the period of time between the first day of one annual meeting and the first day of the next.]

Any Fellow neglecting to pay his annual dues for two years may forfeit his membership, upon vote of the Executive Council.

The Secretary shall receive annually a draft from the President drawn on the Treasurer for a sum, to be fixed by the Executive Council, for the services he shall have rendered the Association during the year.

A contingent fund of one hundred dollars shall be placed annually at the disposal of the Secretary for current expenses, to be disbursed by him, and for which he shall present proper vouchers.

ATTENDANCE.

X. Any Fellow who shall neither attend nor present a paper for three consecutive years, unless he offer a satisfactory excuse, may be dropped from fellowship upon vote of the Executive Council.

RULES.

XI. *Robert's Rules of Order* shall be accepted as a parliamentary guide in the deliberations of the Association.

AMENDMENTS.

XII. These By-Laws may be amended by a two-thirds vote of the Fellows present at any meeting; *provided,* previous notice in writing shall have been given at the annual meeting next preceding the one at which the vote is to be taken.

OFFICERS FOR 1904-1905.

PRESIDENT.

HOWARD WILLIAMS LONGYEAR, Detroit.

VICE-PRESIDENTS.

DAVID TOD GILLIAM, Columbus.

JOHN YOUNG BROWN, Saint Louis.

SECRETARY.

WILLIAM WARREN POTTER, Buffalo.

TREASURER.

XAVIER OSWALD WERDER, Pittsburg.

EXECUTIVE COUNCIL.

ALBERT VANDER VEER, Albany.

LEWIS SAMUEL McMURTRY, Louisville.

LEHMAN HERBERT DUNNING, Indianapolis.

RUFUS BARTLETT HALL, Cincinnati.

JAMES F. W. ROSS, Toronto.

WALTER BLACKBURN DORSETT, Saint Louis.

HONORARY FELLOWS.

* Deceased.

1899.—Ballantyne, John William, M.D., F.R.C.P.E., F.R.S. Edin. Lecturer on Midwifery and Gynecology, School of the Royal College, Edinburgh; Examiner in Midwifery and Gynecology in the University of Edinburgh; Vice-President of the Edinburgh Obstetrical Society; Honorary Fellow of the Glasgow Obstetrical and Gynecological Society. 24 Melville Street, Edinburgh, Scotland.

1889.—Bantock, George Granville, M.D., F.R.C.S. Ed. Surgeon to the Samaritan Free Hospital. 14 Upper Hamilton Terrace, London, N. W., England.

1889.—Barbour, A. H. Freeland, M.A., B.S.C., M.D., F.R.C.P. Ed., F.R.S. Ed. Lecturer on Midwifery and Diseases of Women in the Edinburgh Medical School; Assistant Physician to the Royal Maternity Hospital; Assistant Physician for Diseases of Women to the Royal Infirmary; Physician to the Women's Dispensary; Fellow of the Edinburgh and London Obstetrical Societies, and of the British Gynecological Society; Corresponding Fellow of the Royal Academy of Medicine, Turin. 4 Charlotte Square, Edinburgh, Scotland.

1892.—*Boislinière, L. Ch., A.B., M.D., LL.D., Saint Louis, Mo. 1896.

1890.—Championnière, Just. Lucas, M.D. 3 Avenue Montaigne, Paris, France.

1889.—*Charpentier, Louis Arthur Alphonse, M.D. Paris, France. 1899.

1888.—Cordes, August Elisèe, M.D. Member of the Royal College of Physicians, London; Fellow of the Obstetrical Society of London and of the British Gynecological Society; Corresponding National Member of the Obstetrical and Gynecological Society of Paris; Honorary Fellow of the Detroit Gynecolog-

ical Society; late "Chirurgien-adjoint" of the Obstetrical and Gynecological Clinic at the Maternity at Geneva; Consulting Accoucheur of the Miséricorde Hospital, etc.; Perpetual Member of the Société Obstétricale de France, Paris, France. 12 Rue Bellot, Geneva, Switzerland.

1890.—*Corson, Hiram, M.D. 1896.

1889.—Croom, Sir J. Halliday, M.D., F.R.C.P.E., F.R.C.S.E., F.R.S.E. Physician to and Clinical Lecturer on Diseases of Women, Royal Infirmary, Edinburgh; Physician to the Royal Maternity Hospital; Lecturer on Midwifery and the Diseases of Women at the School of Medicine; Consulting Physician for Diseases of Women, Western Dispensary. 25 Charlotte Square, Edinburgh, Scotland.

1889.—*Dunlap, Alexander, A.M., M.D. Springfield, O. 1894.

1888.—*Edis, Arthur Wellesley, M.D. Lond., F.R.C.S., M.R.S.C.S. London, England. 1893.

1889.—*Eklund, Abraham Fredrik, M.D. Stockholm, Sweden. 1898.

1891.—Fernandez, Juan Santos, M.D. Calle de la Reina, No. 92, Havana, Cuba.

1891.—*Fisher, George Jackson, A.M., M.D. Sing Sing, N. Y. 1893.

1889.—Freund, William Alexander, M.D. Professor and Director of the Clinic for Diseases of Women in the University of Berlin. Kleiststrasse 5, Berlin W., Germany.

1896.—*Gaston, James McFadden, A.M., M.D. Atlanta, Ga. 1903.

1892.—*Green, Traill, M.D., LL.D. Easton, Pa. 1897.

1894.—Jacobs, Charles, M.D. Professor of the Faculty of Medicine of Brussels; Secretary-General of the Permanent Committee of the Periodic International Congress of Gynecology and Obstetrics; Honorary President of the Belgian Society of Gynecology and Obstetrics; Honorary Fellow of the Gynecological Societies of New York and Chicago; Member of the Southern Surgical and Gynecological Association; Corresponding Member of the Gynecological Society of Paris; Surgeon to the Brussels Polyclinic. 53 Boulevard de Waterloo, Brussels, Belgium.

1889.—*Keith, Thomas, M.D. London, England. 1896.

1889.—Leopold, G., M.D. Professor in the Royal Clinic for Diseases of Women. 90 Pfotenhauerstrasse, Dresden, Germany.

1894.—*Maclean, Donald, M.D. Detroit, Mich. 1903.

1890.—Martin, August, M.D. Professor of Gynecology in the University of Greifswald. Greifswald, Germany.

1895.—*Mastin, Claudius Henry, M.D., LL.D. Mobile, Ala. 1898.

1897.—Mathews, Joseph McDowell, M.D. Professor of Diseases of the Rectum and Clinical Surgery, Hospital College of Medicine; President of the Kentucky State Board of Health; First Vice-President American Medical Association, 1898; President, 1899. 923 Fourth Avenue, Louisville, Kentucky.

1891.—*Moses, Gratz Ashe, M.D. Saint Louis, Mo. 1901.

1889.—Nicolaysen, Julius, M.D. Professor of Surgery in the University of Norway. Christiania, Norway.

1891. Pietranera, E., M.D. Professor of Obstetrics in the Medical Department of the National University; Director of the Maternity Branch of the Clinical Hospital. 2711 Calle Rio Adaria, Buenos Ayres, Argentine Republic, S. A.

1889.—*Saenger, Max, M.D. Prague. 1903.

1890.—Savage, Thomas, M.D., F.R.C.S.Eng. Surgeon to the Birmingham Hospital for Women. 33 Newhall Street, Birmingham, England.

1889.—Schultze, Bernhard Sigmund, M.D. Professor of Gynecology; Director of the Lying-in Institute and of the Gynecological Clinic. 2 Sellierstrasse, Jena, Germany.

1896.—Ségond, Paul, M.D. Professor of the Faculty of Medicine, Paris; Surgeon to the Salpêtrière; Principal Physician to the Orleans Railroad. 11 Quai d'Orsay, Paris, France.

1899.—Sinclair, William Japp, M.A., M.D. (Aberd.), M.R.C.P. Professor of Obstetrics and Gynecology, Owens College, Victoria University; Physician to the Manchester Southern Hospital for Diseases of Women and Children. Garvock House, Dudley Road, Whalley Range, Manchester, England.

1894.—*Slaviansky, Kronid, M.D. St. Petersburg, Russia. 1898.

1888.—*Smith, J. Greig, M.A., C.M., M.B., F.R.S.E. Bristol, England. 1897.

1896.—Sternberg, George Miller, A.M., M.D., LL.D. Surgeon-General U. S. Army (Retired). 2144 Columbia Avenue, Washington, D. C.

1899.—*Storrs, Melancthon, A.M., M.D. (Founder. Transferred from Ordinary Fellow.) Hartford, Conn. 1900.

1888.—*Tait, Lawson, M.D., LL.D., F.R.C.S.E. Birmingham, England. 1899.

1900.—*Thornton, J. Knowsley, M.B., M.C. Cambridge, England. 1904.

1888.—Williams, Sir John, Bart., M.D., F.R.C.P. Plâs Llanstephan, Carmarthenshire, Wales.

1901.—Weber, Gustav C. E., M.D., LL.D. Willoughby, Ohio.

1889.—von Winckel, F., M.D. Professor of Gynecology and Director of the Royal Hospital for Women; Member of the Supreme Council and of the Faculty of Medicine in the University of Munich. 16a Sonnenstrasse, Munich, Germany.

Total, twenty-two Honorary Fellows.

CORRESPONDING FELLOWS.

1899.—Beuttner, Oscar, M.D. Private-docent of the Faculty of Medicine. 2 Place de la Fasterie, Geneva, Switzerland.

1903.—Crozel, G., M.D. Professor Libre of Gynecology. Collonges au Mont d'Or (Rhone), France.

1903.—Ellis, Guilherme, M.D. Chief Surgeon to the Real Sociedade de Beneficencia Portuguese Hospital. 6 Rua Aurora, S. Paulo, Brazil, S. A.

1891.—Griffin, Herbert Spohn, B.A., M.D. Surgeon to Hamilton City Hospital; Examiner in Obstetrics, University of Toronto. 157 Main Street, Hamilton, Ontario, Canada.

1903.—Lane, Horace Manley, M.D., LL.D. President of Mackenzie College, S. Paulo, Brazil. 184 Rua da Consolacao, S. Paulo, Brazil, S. A.

1891.—Machell, Henry Thomas, M.D., L.R.C.P. Ed. Lecturer on Obstetrics, Women's Medical College; Surgeon to St. John's Hospital for Women; Physician to Victoria Hospital for Sick Children and to Hillcrest Convalescent Home. 95 Bellevue Avenue, Toronto, Ontario, Canada.

1898.—Wright, Adam Henry, B.A., M.D. Univ. Toronto, M.R.C.S. Eng. Professor of Obstetrics in the University of Toronto; Obstetrician and Gynecologist to the Toronto General Hospital and Burnside Lying-in Hospital. *President,* 1891. (Transferred from Ordinary List, 1898.) 30 Gerrard Street, East, Toronto, Ont., Canada.

Total, seven Corresponding Fellows.

ORDINARY FELLOWS.

*Deceased †Resigned.

1902.—Abrams, Edward Thomas, A.M., M.D. Consulting Surgeon to the Lake Superior General Hospital; Member of the Michigan State Medical Society; Member of the American Medical Association. Dollar Bay, Mich.

1890.—Asdale, William James, M.D. Professor of Diseases of Women, Western Pennsylvania Medical College (Medical Department, University of Western Pennsylvania). 5523 Ellsworth Avenue, Pittsburg, Pa.

1895.—Bacon, Joseph Barnes, M.D. Professor of Rectal Diseases at the Post-Graduate Medical School; Instructor in Clinical Surgery in the Medical Department of Northwestern University. Macomb, Ill.

1903.—Bandler, Samuel Wyllis, M.D. Instructor in Gynecology in the New York Post-Graduate Medical School and Hospital; Adjunct Gynecologist to the Beth Israel Hospital. 229 West Ninety-seventh Street, New York, N. Y.

Founder.—*Baker, Washington Hopkins, M.D. Philadelphia, Pa. 1904.

1895.—Baldwin, James Fairchild, A.M., M.D. Surgeon to Grant Hospital, 125 South Grant Avenue. Residence, 405 E. Town Street, Columbus, Ohio.

1889.—Barrow, David, M.D. Member of the Southern Surgical and Gynecological Association. Residence, 379 South Broadway; Office, 148 Market Street, Lexington, Ky.

1892.—Blume, Frederick, M.D. Gynecologist to the Allegheny General Hospital and Pittsburg Free Dispensary; Obstetrician to the Roselia Maternity Hospital; Consulting Gynecolo-

gist to the Mercy Hospital; President of the Pittsburg Obstetrical Society, 1892. 524 Penn Avenue, Pittsburg. Pa.

1900.—Bonifield, Charles Lybrand, M.D. Professor of Clinical Gynecology in the Medical College of Ohio; President of the Cincinnati Academy of Medicine, 1900; Gynecologist to the Good Samaritan, Christ's, and to Speer's Memorial Hospitals; formerly President of the Cincinnati Obstetrical Society; Secretary of the Section on Obstetrics and Gynecology, American Medical Association, 1901-4, Chairman, 1905. Residence, corner Washington and Gholson Avenues; Office, 432 West Fourth Street, Cincinnati, Ohio.

1896.—Bosher, Lewis C., M.D. Professor of the Principles of Surgery and Clinical Lecturer on Genitourinary Surgery, Medical College of Virginia; Visiting Surgeon to the Old Dominion Hospital; President Southern Surgical and Gynecological Association, 1905. 717 East Franklin Street, Richmond, Va.

Founder.—Boyd, James Peter, A.M., M.D. Professor of Obstetrics, Gynecology and Diseases of Children in the Albany Medical College; Gynecologist to the Albany Hospital; Consulting Obstetric Surgeon to St. Peter's Hospital; Fellow of the British Gynecological Society. 152 Washington Avenue, Albany, N. Y.

1889.—Branham, Joseph H., M.D. Demonstrator of Anatomy in the College of Physicians and Surgeons; Visiting Surgeon to Bayview Hospital. 2200 Eutaw Place, cor. Ninth Avenue, Baltimore, Md.

1894.—Brown, John Young, M.D. Late First Assistant Physician in the Central Kentucky Asylum for the Insane; President of the Mississippi Valley Medical Association, 1898; Superintendent and Surgeon in charge City Hospital. *Vice-President,* 1905. Address City Hospital, Saint Louis, Mo.

1889.—Burns, Bernard, M.D. Allegheny, Pa. 1892.

Founder.—Carstens, J. Henry, M.D. Professor of Obstetrics and Clinical Gynecology in the Detroit College of Medicine; Gynecologist to the Harper Hospital; Attending Physician to the Woman's Hospital; Obstetrician to the House of Providence; President of the Detroit Gynecological Society, 1892. *Vice-President,* 1888-89; *President,* 1895; *Executive Council,* 1896-98. 620 Woodward Avenue, Detroit, Mich.

1895.—CHASE, WALTER BENAJAH, M.D. Gynecologist to the Bushwick Hospital; Attending Surgeon and Gynecologist, Central Hospital and Dispensary; Consulting Gynecologist to the Long Island College Hospital; Councilor to the Long Island College Hospital; Fellow of the Brooklyn Gynecological Society (President, 1893); Member Medical Society County of Kings (President, 1892); Permanent Member Medical Society State of New York; Member of the Brooklyn Pathological Society, and Honorary Member of the Queens County Medical Society. *Executive Council,* 1899-1904. 263 Hancock Street, Borough of Brooklyn, New York.

Founder.—CLARKE, AUGUSTUS PECK, A.M., M.D. Dean and Professor of Gynecology and Abdominal Surgery in the College of Physicians and Surgeons, Boston; Vice-president of the American Medical Association, 1896; President of the Gynecological Society of Boston, 1891-92; Vice-president of the Pan-American Medical Congress, Washington, 1893, and of the Pan-American Medical Congress, Mexico, 1896; Honorary President of the Section of Obstetrics and Gynecology of the Twelfth International Medical Congress, Moscow, Russia, 1897; Member of the Massachusetts Medical Society; Fellow of the American Academy of Medicine; Member of the American Public Health Association. 825 Massachusetts Avenue, Cambridge, Mass.

1890.—*COLES, WALTER, M.D. Saint Louis, Mo. 1892.

1904.—CONGDON, CHARLES ELLSWORTH, M.D. Gynecologist to the City Hospital for Women. 1034 Jefferson Street, Buffalo, N. Y.

1901.—CRILE, GEORGE W., A.M., M.D. Professor of Clinical Surgery in the Western Reserve University Medical College; Surgeon to St. Alexis's Hospital; Associate Surgeon to Lakeside Hospital. 169 Kensington Street, Cleveland, O.

1894.—CROFFORD, THOMAS JEFFERSON, M.D. Professor of Physiology and Clinical Lecturer on Diseases of Women in the Memphis Hospital Medical College; Member of the Southern Surgical and Gynecological Association. *Vice-president,* 1900. 155 Third Street, Memphis, Tenn.

1897.—CUMSTON, CHARLES GREENE, B.M.S., M.D. (Geneva, Switzerland). Assistant Professor of Surgical Pathology, Tufts College Medical School, Boston; Member of the Massachusetts

Medical Society; Honorary Member of the Surgical Society of Belgium, and Corresponding Member of the Obstetrical and Gynecological Society of Paris; Corresponding Member of the Association of Genitourinary Surgeons of France; Corresponding Member of the Pathological Society of Brussels, Belgium; Corresponding Member of the Electro-therapeutical Society of France. *Vice-president,* 1902. 871 Beacon Street, Boston, Mass.

Founder.—†*Cushing, Clinton, M.D. San Francisco, Cal. 1900. 1904.

1903.—Davis, John D. S., M.D. Professor of Surgery in the Birmingham Medical College; Surgeon to Hillman Hospital; ex-President of Jefferson County Medical Society and of the Board of Health of Jefferson County. Avenue G and Twenty-first Street, Birmingham, Ala.

1889.—*Davis, William Elias B., M.D. Birmingham, Ala. 1903.

1902.—Deaver, Harry Clay, M.D. Visiting Surgeon to the Episcopal, St. Christopher's, and St. Mary's Hospitals. 1534 North Fifteenth Street, Philadelphia, Pa.

1896.—Deaver, John Blair, M.D. Formerly Assistant Professor of Applied Anatomy at the University of Pennsylvania; Visiting Surgeon to the German Hospital. 1634 Walnut Street, Philadelphia, Pa.

1892.—Dorsett, Walter Blackburn, M.D. Professor of Obstetrics and Gynecology in the Marion Sims-Beaumont College of Medicine, Medical Department of Saint Louis University; Gynecologist to the Missouri Baptist Sanitarium, Evangelical Deaconess's Hospital and the Good Samaritan Hospital; Consulting Gynecologist to the Saint Louis City and Female Hospitals. President of the Saint Louis Medical Society, 1892; President of the Missouri State Medical Society, 1900. *Vice-president,* 1898; *President,* 1904; *Executive Council,* 1905. Residence 5070 Washington Avenue; Office Linmar Building, cor. Washington and Vandeventer Avenues, Saint Louis, Mo.

1889.—Douglas, Richard, M.D. Professor of Gynecology and Abdominal Surgery in the Vanderbilt Medical College; President of the Tri-State Medical Society of Alabama, Georgia,

and Tennessee, 1893; Fellow of the British Gynecological Society; President of the Southern Surgical and Gynecological Association, 1898. *Vice-president,* 1898. 110 South Spruce Street, Nashville, Tenn.

1892.—*Duff, John Milton, A.M., M.D., Ph.D. Pittsburg, Pa. 1904.

1895.—Dunn, B. Sherwood, M.D. Officier d'Académie; Corresponding Member of the Société Obstétrique et Gynécologique de Paris; Member of the Société Clinique des Praticiens de France, etc. Easton, Pa.

1898.—Dunn, James C., M.D. Obstetrician to Reineman Maternity Hospital. 524 Penn Avenue, Pittsburg, Pa.

1892.—Dunning, Lehman Herbert, M.D., Professor of Diseases of Women in the Medical College of Indiana; Consulting Gynecologist to the Indianapolis City Hospital and Dispensary. *Executive Council,* 1899-1902, 1904-1905; *Vice-President,* 1900; *President,* 1903. Willoughby Building, 224 North Meridian Street, Indianapolis, Ind.

1899.—Eastman, Thomas Barker, A.B., M.D. Professor of the Medical and Surgical Diseases of Women, Central College of Physicians and Surgeons; Gynecologist to the City Hospital, City Dispensary, and Central Free Dispensary. 331 North Delaware Street, Indianapolis, Ind.

1904.—Elbrecht, Oscar H., M.D. Superintendent and Surgeon in charge of the Saint Louis Female Hospital. 5600 Arsenal Street, Saint Louis, Mo.

1895.—Ferguson, Alexander Hugh, M.D. Professor of Surgery at the Chicago Post-Graduate Medical School. Suite 300, Reliance Building, 100 State Street, Chicago, Ill.

1895.—Fish, Edmund Frost, M.D. Professor of Gynecology in Milwaukee Medical College; Gynecologist to the Trinity and Milwaukee County Hospitals; Gynecologist to the Milwaukee Free Dispensary. 507-508 Wells Building, Milwaukee, Wis.

1903.—Frank, Louis, M.D. Professor of Abdominal and Pelvic Surgery in the Medical Department of Kentucky University; Surgeon to Louisville City Hospital; Surgeon and Gyne-

cologist to the Broadway Infirmary. 229 West Chestnut Street, Louisville, Ky.

1890.—Frederick Carlton Cassius, B.S., M.D. Clinical Professor of Gynecology in the Medical Department of Buffalo University; Obstetrician and Gynecologist to the Buffalo Woman's Hospital; Obstetrician to the Widows' and Infants' Asylum; Gynecologist to the Erie County Hospital. 64 Richmond Avenue, Buffalo, N. Y.

1891.—Gibbons, Henry, Jr., A.M., M.D. Dean and Professor of Obstetrics and Diseases of Women and Children in Cooper Medical College; Consulting Physician to the French and the Children's Hospitals. 920 Polk Street, San Francisco, Cal.

1902.—Gillette, William J., M.D. Professor of Abdominal Surgery and Gynecology in the Toledo Medical College; Surgeon to Robinwood Hospital. 1613 Jefferson Street, Toledo, O.

1895.—Gilliam, David Tod, M.D. Professor of Gynecology, Starling Medical College; Gynecologist to St. Anthony Hospital; Gynecologist to St. Francis Hospital; Consulting Gynecologist to State Street Dispensary; Member of the American Medical Association, Mississippi Valley Medical Associatian, and Ohio State Medical Society; Honorary Member of the Northwestern Medical Society; Member and ex-President of Columbus Academy of Medicine. *Vice-president,* 1905. 50 North Fourth Street, Columbus, O.

1895.—Goldspohn, Albert, M.D. Professor of Gynecology, Post-Graduate Medical School; Senior Gynecologist, German Hospital; Attending Gynecologist, Post-Graduate and Charity Hospitals. *Vice-president,* 1901. Residence 519 Cleveland Avenue; Office 34 Washington Street, Chicago, Ill.

1904.—Goodfellow, George E., M.D. Division Surgeon, San Francisco Railroad. 771 Sutter Street, San Francisco, Cal.

1903.—Guenther, Emil Ernest, M.D. Senior Assistant Gynecologist and Obstetrician to St. Barnabas's Hospital; Attending Surgeon to the German Hospital, Newark. 159 West Kinney Street, Newark, N. J.

1892.—*Haggard, William David, M.D. Nashville, Tenn. 1901.

1900.—HAGGARD, WILLIAM DAVID, JR., M.D. Professor of Gynecology, Medical Department University of Tennessee; Professor of Gynecology and Abdominal Surgery, University of the South (Sewanee); Gynecologist to the Nashville City Hospital; President of the Nashville Academy of Medicine; Secretary of the Section on Diseases of Women and Obstetrics, American Medical Association, 1898; Fellow (and Secretary) of the Southern Surgical and Gynecological Association; Member of the Alumni Association of the Woman's Hospital, N. Y. *Vice-president,* 1904. 302 Vine, corner Union Street, Nashville, Tenn.

1889.—HALL, RUFUS BARTLETT, A.M., M.D. Professor of Gynecology and Clinical Gynecology at the Miami Medical College; Gynecologist to the Presbyterian Hospital; Member of the British Gynecological Association; of the Southern Surgical and Gynecological Association; of the American Medical Association; of the Ohio State Medical Society (President, 1900); of the Cincinnati Academy of Medicine; President of the Cincinnati Obstetrical Society, 1896. *Vice-president,* 1891; *President,* 1900; *Executive Council,* 1904-1905. Berkshire Building, 628 Elm Street, Cincinnati, O.

1903.—HAMILTON, ALBERT GRANT, M.D. Surgeon in Chief to the Springfield Hospital. Springfield, Neb.

1902.—HAMILTON, CHARLES SUMNER, A.B., M.D. Professor of the Principles of Surgery in Sterling Medical College; Surgeon to Mt. Carmel and Children's Hospitals. 1 North Fourth Street, Columbus, O.

1894.—HAYD, HERMAN EMIL, M.D., M.R.C.S. Eng. Gynecologist to the Erie County Hospital; Surgeon to the German Hospital. *Vice-president,* 1903. 493 Delaware Avenue, Buffalo, N. Y.

Founder.—*HILL, HAMPTON EUGENE, M.D. Saco, Me. 1894.

1891.—HOLMES, JOSUS BILLINGTON SANDERS, M.D. Professor of Obstetrics in the Southern Medical College; President of the Georgia State Medical Association, 1890; Member of the Southern Surgical and Gynecological Association; Member of the American Medical Association. 17 West Cain Street, Atlanta, Ga.

1891.—HOWITT, HENRY, M.D., M.R.C.S. Eng. Surgeon to the Guelph General and St. Joseph's Hospital, Guelph; Member of

the British and Ontario Medical Associations; Medical Health Officer for the City of Guelph. *Vice-president,* 1895. 235 Woolwich Street, Guelph, Ontario, Canada.

1895.—HUMISTON, WILLIAM HENRY, M.D. Associate Professor of Gynecology in the Medical Department of Western Reserve University; Gynecologist in Chief to St. Vincent's Charity Hospital; Consulting Gynecologist to the City Hospital; President of the Ohio State Medical Society, 1898. *Executive Council,* 1902-1903. 536 Rose Building, Cleveland, O.

1898.—HYDE, JOEL W., M.D. Obstetric Surgeon to St. Mary's Hospital; Consulting Obstetrician to the Long Island College Hospital; Consulting Gynecologist to Central Hospital. 215 Schermerhorn Street, Brooklyn, N. Y.

1901.—ILL, CHARLES L., M.D. Surgeon to German Hospital; Assistant Gynecologist to St. Michael's and St. Barnabas's Hospitals; Obstetrician to St. Barnabas's Hospital, Newark; Assistant Gynecologist to all Souls' Hospital, Morristown. 188 Clinton Avenue, Newark, N. J.

Founder.—ILL, EDWARD JOSEPH, M.D. Surgeon to the Woman's Hospital; Medical Director of St. Michael's Hospital; Gynecologist and Supervising Obstetrician to St. Barnabas's Hospital; Consulting Gynecologist to the German Hospital and the Bnoth Israel Hospital of Newark, N. J., to All Souls' Hospital, Morristown, N. J., and to the Mountain Side Hospital, Montclair, N. J.; Member of the Southern Surgical and Gynecological Association. Vice-president from New Jersey of the Pan-American Medical Congress of 1893. *Vice-president,* 1893; *President,* 1899; *Executive Council,* 1901-1903. 1002 Broad Street, Newark, N. J.

1897.—*INGRAHAM, HENRY DOWNER, M.D. Buffalo, N. Y. 1904.

Founder.—*JARVIS, GEORGE CYPRIAN, M.D. Hartford, Conn. 1900.

1894.—JAYNE, WALTER ADDISON, M.D. Professor of Gynecology in the Medical Department of the University of Denver; Consultant in Gynecology, St. Luke's Hospital; Gynecologist to the Arapahoe County Hospital, Denver. 416 McPhee Building, Denver, Col.

1892.—*Jelks, James Thomas, M.D. Hot Springs, Ark. 1902.

1891.—Johnston, George Ben, M.D. Professor of Gynecology and Abdominal Surgery in the Medical College of Virginia; Surgeon to the Old Dominion Hospital; Physician to St. Joseph's Female Orphan Asylum; Consulting Surgeon to the City Free Dispensary; Member of the American Surgical Association, (President, 1905). Vice-president of the Southern Surgical and Gynecological Association, 1892, (President, 1897); ex-President of the Richmond Medical and Surgical Society; President of the Virginia State Medical Society, 1897. *Vice-president,* 1897. 407 East Grace Street, Richmond, Va.

1902.—Keefe, John William, M.D. Attending Surgeon to the Gynecological Department of St. Joseph's Hospital; Attending Surgeon to the Rhode Island Hospital; Consulting Surgeon to the Providence Lying-in-Hospital. 259 Benefit Street, Providence, R. I.

1893.—Laidley, Leonidas Hamlin, M.D. Professor of Gynecology in the Beaumont Hospital Medical College; Surgeon in chief to the Protestant Hospital; Medical Director of the Saint Louis World's Fair of 1904. 3538 Washington Avenue, Saint Louis, Mo.

1898.—Langfitt, William Sterling, M.D. Surgeon in chief to St. John's Hospital. 510-512 Bijou Building, Penn Avenue, Pittsburg, Pa.

1901.—Lincoln, Walter Rodman, B.A., M.D. Lecturer on Gynecology, College of Physicians and Surgeons of Cleveland, O. Lennox Building, corner Erie Street and Euclid Avenue, Cleveland, O.

1900.—Linville, Montgomery, A.B., M.D. Surgeon to Slemango Valley Hospital; Surgeon to three lines of Pennsylvania railways. 35 North Mercer Street, New Castle, Pa.

1890.—Longyear, Howard Williams, M.D. Gynecologist to Harper Hospital; Physician to the Woman's Hospital; President of the Detroit Gynecological Society, 1889; Chairman of the Section on Obstetrics and Gynecology of the Michigan State Medical Society, 1892. *Vice-president,* 1893; *President,* 1905. 271 Woodward Avenue, Detroit, Mich.

Founder.—*Lothrop, Thomas, M.D. Buffalo, N. Y. 1902.

1896.—Lyons, John Alexander, M.D. Instructor in Gynecology at the Post-Graduate Medical School; Gynecologist and Lecturer to Nurses at the Chicago Hospital. 4118 State Street, Chicago, Ill.

1891.—†Macdonald, Willis Goss, M.D. Albany, N. Y. 1905.

1901.—McCandless, William A., A.M., M.D. Chief Surgeon St. Mary's Infirmary; Visiting Surgeon to the City Hospital; Professor of Special and Clinical Surgery, Marion Sims-Beaumont College of Medicine. 3857 Westminster Place, Saint Louis, Mo.

1891.—*McCann, James, M.D. Pittsburg, Pa. 1893.

1898.—*McCann, Thomas, M.D. Pittsburg, Pa. 1903.

Founder.—McMurtry, Lewis Samuel, A.M., M.D. Professor of Gynecology in the Hospital College of Medicine; Gynecologist to Sts. Mary and Elizabeth Hospital; Fellow of the Edinburgh Obsetrical Society; Fellow of the British Gynecological Society; Corresponding Member of the Obstetrical Society of Philadelphia and of the Gynecological Society of Boston; Member (President, 1891) of the Southern Surgical and Gynecological Association; President American Medical Association 1905. *Executive Council,* 1891-1892, 1895-1905; *President,* 1893. 1912 Sixth Street, Louisville, Ky.

Founder.—Manton, Walter Porter, M.D. Professor of Clinical Gynecology and Adjunct Professor of Obstetrics, Detroit College of Medicine; Gynecologist to Harper Hospital and the Eastern Michigan Asylum for the Insane; Vice-president of Medical Board of the Woman's Hospital and Foundlings' Home; Consulting Gynecologist to the Northern Michigan Asylum and St. Joseph's Retreat; Gynecic Surgeon to the House of the Good Shepherd; President of the Detroit Academy of Medicine, 1892-1894; President of the Detroit Gynecological Society, 1890; Fellow of the British Gynecological Society; Fellow of the Royal Microscopical Society and of the Zoölogical Society of London. *Vice-president,* 1894. 32 Adams Avenue, W., Detroit, Mich.

Founder.—†*Maxwell, Thomas Jefferson, M.D. Keokuk, Iowa. 1902-1905.

Founder.—Miller, Aaron Benjamin, M.D. Professor of Gynecology in the Medical Department of Syracuse University; Gynecologist to St. Joseph's Hospital, House of the Good Shep-

herd and Dispensary. *Vice-president,* 1899; 1904. 326 Montgomery Street, Syracuse, N. Y.

1896.—*Mooney, Fletcher D., M.D. Saint Louis, Mo. 1897.

1904.—Morris, Lewis Coleman, M.D. Professor of Gynecology and Abdominal Surgery in the Birmingham Medical College; Secretary, Medical Association State of Alabama, 1904; Member of Jefferson County Board of Health. 714 North Eighteenth Street, Birmingham, Ala.

1890.—Morris, Robert Tuttle, A.M., M.D. Professor of Surgery in the New York Post-Graduate Medical School and Hospital. *Vice-president,* 1892. 616 Madison Avenue, New York, N. Y.

Founder.—*Moses, Gratz Ashe, M.D. Saint Louis, Mo. 1901. (See Honorary Fellows.)

1894.—Murphy, John Benjamin, A.M., M.D. Professor of Surgery in Rush Medical College and in the Post-Graduate Medical College; Attending Surgeon to the Cook County Hospital and to Alexander Hospital. Residence, 3152 Michigan Avenue; Office, 400 Reliance Building, 100 State Street, Chicago, Ill.

Founder.—†Myers, William Herschel, M.D. Fort Wayne, Ind. 1904.

1904.—Newman, Louis Edward, A.M., M.D. President of the Saint Louis Obstetrical and Gynecological Society, 1904. 4040 Washington Boulevard, Saint Louis, Mo.

1897.—Nichols, William R., M.D. 295 Edmonton Street, Winnipeg, Manitoba, Canada.

1896.—Noble, George Henry, M.D. Gynecologist to the Grady Hospital; Secretary of the Section on Obstetrics and Gynecology of American Medical Association, 1897; Member of the Southern Surgical and Gynecological Association. 131 and 133 South Pryor Street, Atlanta, Ga.

1903.—Noble, Thomas Benjamin, M.D. Professor of Abdominal Surgery in the Central College of Physicians and Surgeons; Consultant in the Diseases of Women at the City Hospital, City Dispensary, and Protestant Deaconess's Hospital, Indianapolis. 427 Newton Claypool Building, Indianapolis, Ind.

1889.—†Paine, John Fannin Young, M.D. Galveston, Texas. 1904.

1899.—Pantzer, Hugo Otto, M.D. Gynecologist to the City Hospital and City Dispensary; Consulting Gynecologist to the Deaconess's Hospital and to the Indiana State Hospital. 224 North Meridian Street, Indianapolis, Ind.

1890.—Pearson, William Libby, M.D. 713 Union Street, Schenectady, N. Y.

1891.—Peck, George Sherman, M.D. Consulting Surgeon to the Youngstown City Hospital. *Vice-president,* 1896. 26 West Federal Street, Youngstown, O.

1899.—Pfaff, Orange G., M.D. Adjutant Professor of Obstetrics and Diseases of Women in the Medical College of Indiana; Gynecologist to the City, Deaconess's, and St. Vincent's Hospitals. 1337 North Pennsylvania Street, Indianapolis, Ind.

1898.—Porter, Miles F., M.D. Ex-President Indiana State Medical Society. *Vice-president,* 1902. 207 West Wayne Street, Fort Wayne, Ind.

Founder.—Potter, William Warren, M.D. Consulting Gynecologist to the Woman's Hospital; Consulting Surgeon to the Buffalo General Hospital; President and Examiner in Obstetrics, New York State Medical Examining and Licensing Board; Chairman of Section of Obstetrics and Diseases of Women, American Medical Association, 1890; President of the Buffalo Obstetrical Society, 1884-1886; Member of the Southern Surgical and Gynecological Association; President of the Medical Society of the State of New York, 1891; Executive President of the Section of Gynecology and Abdominal Surgery, First Pan-American Medical Congress (1893). *Secretary,* 1888-1905. 284 Franklin Street, Buffalo, N. Y.

1903.—Poucher, John Wilson, M.D. Consulting Surgeon to Vassar Brothers Hospital, Poughkeepsie. 339 Mill Street, Poughkeepsie, N. Y.

Founder.—Price, Joseph, M.D. Physician in charge of the Obstetrical and Gynecological Department of the Philadelphia Dispensary; Member of the Southern Surgical and Gynecological Association; Honorary Fellow of the Medical Society of the State of New York; Honorary Fellow of the South Carolina Medical Society; Honorary Fellow of the Virginia Medical Society;

Member of the British Gynecological Association and of the Edinburgh Obstetrical Society. *Executive Council,* 1894-1895; *President,* 1896. 241 North Eighteenth Street, Philadelphia, Pa.

1904.—Reder, Francis, M.D. Chief of Clinic Department of Rectal Diseases, Medical Department of Washington University; Surgeon to Burlington Rink. 5629 Cook Avenue, Saint Louis, Mo.

Founder.—Reed, Charles Alfred Lee, A.M., M.D. Professor of Gynecology and Abdominal Surgery in the Cincinnati College of Medicine and Surgery and in the Woman's Medical College of Cincinnati; Surgeon to the Cincinnati Free Surgical Hospital for Women; Secretary-General of the First Pan-American Medical Congress, 1893; Member of the Southern Surgical and Gynecological Society; Fellow of the British Gynecological Society; President of the American Medical Association, 1901. *Executive Council,* 1890-1897; *President,* 1898. Rooms 61 and 62, The Groton, N. E. corner Seventh and Race Streets, Cincinnati, O.

1896.—*Rhett, Robert Barnwell, Jr., M.D. Charleston, S. C. 1901.

1890.—Ricketts, Edwin, M.D. Professor of Abdominal Surgery and Gynecology at the Cincinnati Polyclinic; Member of the American and British Medical Associations; Member of the Southern Surgical and Gynecological Association. *Vice-president,* 1899; *Executive Council,* 1901, 1904; *President,* 1902. 408 Broadway, Cincinnati, O.

1889.—*Rohé, George Henry, M.D. Baltimore, Md. 1899.

1892.—Rosenwasser, Marcus, M.D. Dean and Professor of Diseases of Women and Abdominal Surgery in the University of Wooster; Gynecologist to the Cleveland Hospital for Women and Children; Consulting Gynecologist to the City Hospital; Member of the American Medical and Ohio State Medical Associations. *Vice-president,* 1903. 722 Woodland Avenue, Cleveland, Ohio.

1890.—Ross, James Frederick William, M.D., L.R.C.P., Eng. Gynecologist to the Toronto General Hospital; Surgeon to the Woman's Hospital; Lecturer in Clinical Gynecology at the University of Toronto. *Executive Council,* 1892-1896, 1905; *President,* 1897. 481 Sherbourne Street, Toronto, Ont., Canada.

1902.—Runyan, Joseph Phineas, M.D. Division Surgeon to the Choctaw, Oklahoma and Gulf Railroad; Secretary of the Arkansas State Medical Association, President, 1904. 1514 Schiller Avenue, Little Rock, Ark.

1903.—Sadlier, James Edgar, M.D. Consulting Surgeon to Highland Hospital, Poughkeepsie. 295 Mill Street, Poughkeepsie, N. Y.

1904.—Schwarz, Henry, M.D. Professor of Obstetrics, Medical Department of Washington University. 440 North Newstead Avenue, Saint Louis, Mo.

1901.—Scott, N. Stone, A.M., M.D. Professor of Surgery, College of Physicians and Surgeons, Cleveland; Consulting Surgeon to City Hospital; Consulting Surgeon to St. John's Hospital; Surgeon to the Out-patient Department of Cleveland General Hospital. Residence, 531 Prospect Avenue; Office, 603-604 Citizens' Building, Cleveland, O.

1895.—Sellman, William Alfred Belt, M.D. Professor of the Diseases of Women and Children at the Baltimore University School of Medicine; Member of the Medical and Chirurgical Faculty of Maryland; also of the Baltimore Medical and Surgical Association; the Gynecological and Obstetrical Association of Baltimore; the Clinical Society; the Baltimore Journal Club; the American Medical Association, etc. 5 East Biddle Street, Baltimore, Md.

1890.—Sexton, John Chase, A.M., M.D. *Executive Council,* 1894; *Vice-president,* 1897. Rushville, Ind.

1889.—*Seymour, William Wotkyns, A.B., M.D. Troy, N. Y. 1904.

1902.—Simons, Manning, M.D. Professor of Clinical Surgery in the Medical College of the State of South Carolina; Surgeon to St. Francis Xavier's Infirmary and to the City Hospital. 22 Rutledge Avenue, Charleston, S. C.

1899.—Simpson, Frank Farrow, A.B., M.D. Assistant Gynecologist to Mercy Hospital. Bessemer Building, Pittsburg, Pa.

1901.—Skeel, Roland Edward, M.D. Professor of Obstetrics in Cleveland College of Physicians and Surgeons; Consulting

Obstetrician to the City Hospital; Obstetrician to the Cleveland General Hospital. 785 Prospect Street, Cleveland, O.

1891.—SMITH, CHARLES NORTH, M.D. Professor of Obstetrics and Clinical Gynecology in the Toledo Medical College: Gynecologist to St. Vincent's Hospital. 234 Michigan Street, Toledo, Ohio.

1904.—SMITH, WILLIAM S., M.D. Professor of Gynecology in the Maryland Medical College; Gynecologist to Franklin Square Hospital. 520 Hanover Street, Baltimore, Md.

1901.—STAMM, MARTIN, M.D. Professor of Operative and Clinical Surgery in the College of Physicians and Surgeons, Cleveland. 316 Napoleon Street, Fremont, O.

1902.—STARK, SIGMAR, M.D. Professor of Obstetrics and Clinical Gynecology in the Cincinnati College of Medicine and Surgery; Gynecologist to the Jewish Hospital. 1108 East McMillan Street, Cincinnati, O.

Founder.—*STORRS, MELANCTHON, A.M., M.D. Hartford, Conn. (See Honorary List, 1899.) 1900.

1904.—SUTCLIFFE, JOHN ASBURY, A.M., M.D. Consulting Surgeon to St. Vincent's Infirmary; Consultant in Genitourinary Diseases to the City Hospital and to the Protestant Deaconess's Hospital. 824 North Delaware Street, Indianapolis, Ind.

1899.—SWOPE, LORENZO W., M.D. Surgeon to the Consolidated Traction Company; Chief Surgeon to Wabash Railroad, Pittsburg Division; Surgeon to Western Pennsylvania Hospital; Consulting Surgeon to Passavant Hospital; Member of the Allegheny County Medical Society; Member of the American Medical Association. Residence, 4629 Bayard Street; Office, 1105 Park Building, Pittsburg, Pa.

1901.—TATE, MAGNUS ALFRED, M.D. Professor of Diseases of Children and Embryology at the Cincinnati College of Medicine and Surgery; President Cincinnati Academy of Medicine, 1905. 361 East Third Street, Cincinnati, O.

Founder.—†TAYLOR, WILLIAM HENRY, M.D. Ph.D. Cincinnati, O. 1898.

1890.—THOMAS, GEORGE GILLETT, M.D. Ex-president Medical Society of the State of North Carolina. Wilmington, N. C.

1895.—Thompson, Frank Daniel, M.D. Professor of Gynecology in the Medical Department of Fort Worth University. 412 Adams Street, Fort Worth, Texas.

1895.—Tompkins, Christopher, M.D., Ph.D. Professor of Obstetrics and Dean of the Medical College of Virginia; Obstetrician to the Old Dominion Hospital; Member of the Southern Surgical and Gynecological Association. 116 East Franklin Street, Richmond, Va.

Founder.—*Townsend, Franklin, A.M., M.D. Albany, N. Y. 1895.

Founder.—Vander Veer, Albert, A.M., M.D., Ph.D. Professor of Didactic, Clinical, and Abdominal Surgery in the Albany Medical College; Attending Surgeon to the Albany Hospital; Consulting Surgeon to St. Peter's Hospital; Fellow of the American Surgical Association; Fellow of the British Gynecological Society; Member of the Southern Surgical and Gynecological Association; Corresponding Member of the Boston Gynecological Society. *Executive Council,* 1889-1891, 1895-1905; *President,* 1892. 28 Eagle Street, Albany, N. Y.

1891.—Walker, Edwin, M.D., Ph.D. Gynecologist to the Evansville City Hospital; President of the Indiana State Medical Society, 1892; Member of the American Medical Association and of the Mississippi Valley Medical Association; Member of the Southern Surgical and Gynecological Association. *Vice-president,* 1901. 712 Upper Fourth Street, Evansville, Ind.

1889.—Wenning, William Henry, A.M., M.D. Clinical Professor of Gynecology at the Miami Medical College; Chief of Staff and Gynecologist to St. Mary's Hospital. 722 Laurel Street, Cincinnati, O.

Founder.—Werder, Xavier Oswald, M.D. Professor of Gynecology at the Western Pennsylvania Medical College (Medical Department, University of Western Pennsylvania); Consulting Gynecologist at the Allegheny General Hospital; Gynecologist to the Mercy Hospital and Pittsburg Free Dispensary; Obstetrician to the Roselia Maternity Hospital; Consulting Gynecologist to St. Francis's Hospital; Consulting Surgeon to the South Side Hospital. *Treasurer,* 1888-1905. 524 Penn Avenue, Pittsburg, Pa.

1904.—West, James Nephew, M.D. Professor of Diseases of Women and Secretary of the Faculty at the New York Post-Graduate Medical School and Hospital. 71 West Forty-ninth Street, New York.

1896.—Westmoreland, Willis Foreman, M.D. Professor of Surgery at the Atlanta Medical College. Equitable Building, Atlanta, Ga.

1897.—Whitbeck, John W., M.D. Gynecologist to the Rochester City Hospital; Commissioner of the Board of Health. 322 East Avenue, Rochester, N. Y.

1897.—Williams, Henry T., M.D. Attending Surgeon, City Hospital; Attending Surgeon, St. Mary's Hospital; Attending Surgeon, Monroe County Penitentiary; Consulting Surgeon to the Home for the Friendless. 274 Alexander Street, Rochester, N. Y.

1902.—Williams, Joseph John Gurney, M.D. Gynecologist to the Philadelphia Dispensary; Consultant in the Obstetrical Department of the Philadelphia Dispensary. 331 South Thirteenth Street, Philadelphia, Pa.

1900.—Zinke, Ernst Gustav, M.D. Professor of Obstetrics and Clinical Midwifery in the Medical College of Ohio, University of Cincinnati; Obstetrician and Gynecologist to the German Hospital; Obstetrician to the Maternity Hospital. 13 Garfield Place, Cincinnati, O.

Total, one hundred and twelve Ordinary Fellows.

MINUTES OF THE PROCEEDINGS

AT THE

SEVENTEENTH ANNUAL MEETING

OF THE

AMERICAN ASSOCIATION

OF

OBSTETRICIANS AND GYNECOLOGISTS,

HELD AT THE

HOTEL MONTICELLO.

Saint Louis, Mo.,

SEPTEMBER 13, 14, 15 AND 16, 1904.

SEVENTEENTH ANNUAL MEETING.

Saint Louis, Mo., September 13, 14, 15 and 16, 1904.

The following-named Fellows were present:

ABRAMS, EDWARD T.	Dollar Bay.
ASDALE, WM. J.	Pittsburgh.
BROWN, JOHN YOUNG	Saint Louis.
CARSTENS, J. HENRY	Detroit.
DAVIS, JOHN D. S.	Birmingham.
DORSETT, WALTER B.	Saint Louis.
DUNNING, L. H.	Indianapolis.
EASTMAN, THOMAS B.	Indianapolis.
ELBRECHT, OSCAR H.	Saint Louis.
FRANK, LOUIS	Louisville.
GILLIAM, DAVID TOD	Columbus.
GOLDSPOHN, ALBERT	Chicago.
HAGGARD, WILLIAM DAVID	Nashville.
HALL, RUFUS B.	Cincinnati.
HAYD, HERMAN E.	Buffalo.
HUMISTON, WILLIAM H.	Cleveland.
LAIDLEY, L. H.	Saint Louis.
LANGFITT, W. S.	Pittsburgh.
LINVILLE, MONTGOMERY	Newcastle.
LONGYEAR, H. W.	Detroit.
McCANDLESS, WILLIAM A.	Saint Louis.
MORRIS, ROBERT T.	New York.
NOBLE, THOMAS B.	Indianapolis.
NEWMAN, LOUIS E.	Saint Louis.
PFAFF, ORANGE G.	Indianapolis.
POTTER, WILLIAM WARREN	Buffalo.
REDER, FRANCIS	Saint Louis.
ROSS, JAMES F. W.	Toronto.
RUNYAN, JOSEPH P.	Little Rock.
SADLIER, JAMES E.	Poughkeepsie.

SCHWARZ, HENRY	SAINT LOUIS.
SCOTT, N. STONE	CLEVELAND.
SELLMAN, WILLIAM A. B.	BALTIMORE.
STAMM, MARTIN	FREMONT.
TATE, MAGNUS A.	CINCINNATI.
ZINKE, E. GUSTAV	CINCINNATI.

Letters or messages of regret were received from the following-named Fellows:

Honorary.—A. Cordes, Geneva; G. Crozel, Lyons; W. A. Freund, Berlin; Joseph McDowell Mathews, Louisville; B. S. Schultze, Jena; William Japp Sinclair, Manchester; General George M. Sternberg, Washington; G. E. C. Weber, Willoughby.

Ordinary.—James F. Baldwin, David Barrow, Joseph H. Branham, Charles L. Bonifield, Lewis C. Bosher, Walter B. Chase, A. P. Clarke, George W. Crile, Thomas J. Crofford, Charles Greene Cumston, John B. Deaver, Richard Douglas, C. C. Frederick, E. F. Fish, Henry Gibbons, Jr., William J. Gillette, E. E. Guenther, H. S. Griffin (Corresponding Fellow), A. G. Hamilton, Henry Howitt, J. W. Hyde, Charles L. Ill, Edward J. Ill, Walter A. Jayne, George Ben Johnston, Walter R. Lincoln, John A. Lyons, L. S. McMurtry, W. P. Manton, John B. Murphy, William R. Nichols, Hugo O. Pantzer, Miles F. Porter, Joseph Price, Charles A. L. Reed, Edwin Ricketts, M. Rosenwasser, John C. Sexton, Manning Simons, R. E. Skeel, Charles N. Smith, Sigmar Stark, Frank D. Thompson, Christopher Tompkins, A. Vander Veer, Edwin Walker, X. O. Werder, Henry T. Williams.

The Executive Council recommended that the following-named physicians be invited to attend the sessions as members by invitation:

Willard Bartlett, ...	Saint Louis.
L. P. Butler, ...	"
H. S. Crossen, ...	"
H. C. Dalton, ...	"
Charles H. Dixon, ...	"
B. L. Dorsey, ...	"
C. R. Dudley, ...	"
J. H. Duncan, ...	"
Davis Forster, ...	"
David R. Francis, Hon.	"
Robert M. Funkhouser, ...	"

E. C. Gehrung,	Saint Louis.
Henry B. Gettys,	"
Frank A. Glasgow,	"
Roland Hill,	"
B. C. Hopkins,	"
B. M. Hypes,	"
W. U. Kennedy,	"
Bransford Lewis,	"
L. S. Luton,	"
Frank J. Lutz,	"
Mary H. McLean,	"
Ella Marx,	"
Kenneth W. Millican,	"
E. J. Neville,	"
J. M. Pfeiffenberger,	"
Henry A. L. Rohlfing,	"
Frank C. Sibley,	"
W. H. Stauffer,	"
Fred J. Toussig,	"
B. A. Walker,	"
William S. Wiatt,	East Saint Louis.
Carl A. W. Zimmermann,	" " "
L. G. Bowers,	Richmond, Ind.
E. J. Brown,	Stamford, Ky.
W. T. Brown,	Lancaster, Wis.
J. B. Bullitt,	Louisville.
N. R. Coleman,	Columbus.
Edith H. Crooks,	Cleveland.
H. Grad,	New York.
G. L. Greenawalt,	Fort Wayne, Ind.
H. H. Hatcher,	Dayton, O.
L. J. Hurchman,	Detroit.
Byron M. Hutchings,	Crawfordsville, Ind.
T. L. Hutchinson,	Wichita, Kan.
J. C. Le Grande,	Birmingham, Ala.
J. W. Lilly,	Toledo.
M. F. McGuire,	Montpelier, Vt.
P. F. Martin,	Indianapolis.
H. Meek,	London, Ont.
John Miller,	Cincinnati.
G. V. Morton,	Fort Worth, Tex.
M. W. Myers,	Columbus, Mo.

Brig.-Gen. W. G. Owen, Surg.-Gen. La.	New Orleans.
A. S. Price,	Stamford, Ky.
J. B. Smoot,	Dallas, Tex.
M. E. Silver,	Sioux City, Iowa.
John Stenhouse,	Toronto.
B. N. Stevens,	Chillicothe, Mo.
G. J. Tweedy,	Winona, Minn.
J. S. White,	Freeport, Ill.

First Day—*Tuesday, September 13, 1904.*

Morning Session.—The Association was called to order by the President, Dr. Walter B. Dorsett, of Saint Louis, at 10 o'clock.

Prayer was offered by Rev. J. W. Lee, pastor of the M. E. Church, Saint Louis.

The President then introduced Dr. Louis E. Newman, of Saint Louis, who delivered the following

ADDRESS OF WELCOME.

Mr. President and Gentlemen: On behalf of the Saint Louis Obstetrical and Gynecological Society, it gives me great pleasure to have the honor of addressing you this morning on the eve of your entering upon the work of your annual meeting. To say that we, the medical profession of Saint Louis and more especially of the Saint Louis Obstetrical and Gynecological Society, bid you welcome seems scarcely necessary to formulate in words, for a body like the American Association of Obstetricians and Gynecologists must be welcome anywhere and everywhere it may choose to meet on the broad face of the earth.

We feel honored in having Saint Louis selected as the meeting place of an association whose personnel is made up of some of the most illustrious and famous of our medical men. We shall endeavor to show you by our hospitality that we appreciate this honor and we hope that you, one and all, will remain with us as long as you can; and when you leave us, we hope that you will feel that something has passed from your lives, the memory of which will last for a long time. We all hope that we may on this occasion renew our ties of friendship and add new ones to those already existing.

To those of us who may have the privilege of listening to the many able papers which are to be read and discussed at your sessions, the greatest benefit must come, and it is to be hoped that not one of our local body of physicians will fail to attend as many of the sessions as his time may possibly permit.

Our World's Fair opens its gates to the world and invites all to participate in the immense treasures of an educational character which have been gathered from the storehouses of all nations.

The city of Saint Louis is proud to receive our guests and its citizens, through us, recognize the importance of having their physicians come in contact with the men who have helped to make medical history.

I trust that you may all enjoy this visit, and that it will not be long before we may again have the pleasure of extending our hands to you in welcome. (Applause.)

RESPONSE BY DR. HERMAN E. HAYD.

Dr. Newman: On behalf of the Fellows of the American Association of Obstetricians and Gynecologists, I assure you that we appreciate very much your kindness, your welcome, and also our anticipated hospitality in your midst. It is peculiarly gratifying to us that we have an opportunity of visiting your city at such a time as this, when we are not only enabled to enjoy some of the advantages which belong to the esoteric, to the profession, but also some of the great and more important and interesting problems that interest the community. Those of us who come from Buffalo, and who have enjoyed for a number of months all the pleasures and education connected with the Pan-American Exposition, realize what opportunities you are having here in Saint Louis, and have had during the past few months. We also realize that you have the most beautiful, and perhaps the largest and grandest exposition the world has ever produced. It is a good thing for a community to be able to present to the world such a spectacle as you are presenting to us. The Fellows of this Association will not fail to appreciate what they see, and I am sure we will take home pleasant memories and many profitable lessons from what we come in contact with.

As there is a commercial element in expositions of such a momentous character as this one is, we hope that the people will continue to throng your city and that your gates will be tested to their greatest capacity, and, moreover, that you will have your

treasury filled to overflowing. Unfortunately, it is not possible to estimate the value of an exposition from a commercial standpoint. There are broader and greater lessons left with the people, and you will have to solve some of the great questions that are now interesting the pubic. You are in a better position to do so when you have the object lessons which such a vast exposition affords. We thank you very much for the pleasure of being with you. (Applause.)

President Dorsett introduced Hon. David R. Francis, President of the Louisiana Purchase Exposition, who delivered the following

ADDRESS OF WELCOME.

MR. PRESIDENT AND GENTLEMEN: I do not know why I should take up any of your valuable time in extending to you a welcome either to Saint Louis or to the Louisiana Purchase Exposition. I am, however, obliged to you for this opportunity of saying to you that the exposition management appreciates your meeting in Saint Louis during the progress of the exposition.

There are a great many features in connection with this exposition which even to a casual observer are impressive. Speaking as one who has been connected with the movement from its inception, now over six years ago, I might say that it presents new features to me every day. There is not a day passes that I am not more deeply impressed with the character of this universal exposition. The mere thought of having all of the civilized countries on the globe meet in friendly competition and in the pursuits of peace, is of itself almost an overpowering reflection.

I am not going to dwell upon the character of the exhibits at the exposition, nor upon the classification which was made, in order to comprehend all the products of the human mind and of the human hands; but I am going to say to you what I have been thinking of for two or three days past, though you have no connection with the exposition, but the reflection that has made a deeper and deeper impression on me in the last few weeks is that this exposition furnishes the occasion of bringing together the best minds, the most representative men in the world. There is no other attraction which I can recall now that would draw to Saint Louis, draw to any locality in any part of the world, such an assembling of representative men, of bright minds, of leaders in every line of thought and of every line of human endeavor as this

Universal Exposition has brought together, and will continue to bring together for the next two and a half months.

I am profoundly impressed whenever I meet an assembly of distinguished men such as I see in this room. The gentlemen of your profession, who hold the success of your profession above the commercial gain that may attend its progress, men who are students of science, are benefactors of the human race. I feel that when you are brought together in any section of the country the result must be beneficial to your fellowmen; and if this exposition is the cause of bringing together the more representative assemblage of obstetricians and gynecologists than would otherwise meet, it is thereby accomplishing some of the great ends which its projectors had in view.

This exposition has so far surpassed all of the anticipations of its originators, and, if you will permit me to say so, surpassed even the promises that were made concerning what the exposition would be and what it would represent, so that it is difficult to estimate accurately what will be the effect of a Universal Exposition held in this Western country. Many of you know that some of our foreign countries were incredulous as to our ability to establish here an international exposition; there were even in some sections of our country those who were disposed to be doubters. We now ask visitors from whatever country they may hail to inspect for themselves, and to see whether this exposition has not come up to the full measure of our promises and of their expectations. It is not simply an exposition of material products; if it were, it could enter the list with any other exposition ever held in the world. The mere architectural skill of the buildings, together with the incomparable landscape effects, should make an impression upon the mind of every intelligent man that should last a lifetime. The exhibits themselves and the exhibit palaces are wonderful to behold. You may see thousands of people going through these palaces, making a cursory examination with exclamations of surprise and admiration.

Even a cursory examination of these great exhibits by men such as yourselves will be beneficial and edifying. You can see in these exhibit palaces the greatest advances that have been made in your science in any country in the world. The surgical instruments that are on exhibition there will attract your careful scrutiny; they are the best of every country on the globe. And so it is in every line. You will find in every one of these exhibit palaces that there are daily from one to five lectures delivered which

are entirely free to the hundreds and thousands of visitors who enter the gates. These lectures are intended to demonstrate and to make clear the utilities of the exhibits, the processes by which the appliances of science may be put into use.

The exposition is not confined to products alone; but I am not going to dilate upon the material features of the exposition. We have international congresses of the arts and sciences. These have been the occasion already of bringing together a most remarkable assemblage in the Peace Congress that met in Festival Hall yesterday, and is continuing its sessions to-day. It is a body of men composed of fourteen of the civilized countries of the world besides our own. These international congresses are composed of the scientists of the older countries of Europe, as well as of the scholars and scientists of our own country.

The Herculean task has been undertaken to classify all the lines of human thought, all the branches of science that may have indulged in from the beginning of history, so as to prevent these lines from crossing one another, yet making them so comprehensive as to take in every branch of science. Three experts have devoted months of time to this end in view, and the result of their labors was supervised by several other men who stand very high in this country, men of education, men of research. After this general classification of human knowledge has been approved, the men in the different branches of science throughout the world were asked to prepare papers on different subjects, and over one hundred and twenty of them in Europe accepted invitations that were extended through their respective governments. This congress of educated men will meet one week from to-day. All of the papers read before it will be translated into English and published, and that publication will be a summary of the thought of the world from the beginning of history. It will be an important record of the progress of human thought, just as this exposition in itself is almost an epitome of civilization.

I believe I remarked at the opening of one of the congresses the other day that if all the traces of civilization or society were blotted out, a new civilization could be built up upon the evidence of this exposition and from the exhibits that are within its grounds. So, gentlemen, you will excuse me for detaining you so long in talking about our exposition. I am thoroughly interested and deeply absorbed in it; I have done nothing else for three years. I have said to people often that there is an exposition microbe that gets into a man's veins (laughter) and he can't get rid of it. My

friends frequently tell me that I am taxing nature to the utmost. For instance, the other day I attended six functions and made five or six speeches; at the same time, there is an excitement about it, there is such a variety that I never feel tired until the next morning, when I want to go to bed and never want to get up. (Laughter.)

I am very glad indeed to have had the opportunity of making this informal talk to you. I am sure, you will all visit the exposition before you leave Saint Louis. I trust you will spend a great deal of your time there. I am sure, in the communities where you live your judgment has great weight and influence on many other people. We feel in the management of this exposition we have done our share in trying to meet the expectations of all people. If it is not a financial success we shall feel sorry; at the same time, we shall not consider it a failure. We shall feel that the people who do not take advantage of its many opportunities will be the losers more than the exposition management. (Loud and prolonged applause.)

President Dorsett asked Dr. L. H. Dunning to respond to the remarks of ex-Governor Francis.

RESPONSE BY DR. DUNNING.

Governor Francis: We most cordially accept your expressions of welcome to your city and to your exposition. Those of us who have been here for several days have, perhaps, caught some of the spirit which pervades the atmosphere, and we are delighted with the inspiration we have received. We have been cheered, warmed and strengthened by contact with your great city and its wonderful exposition, and we expect to be still further cheered and enlightened before departing for our several homes.

It has been my privilege to visit the exposition grounds for two or three days, and the one thing that has been growing upon me from day to day and has made a deeper impression on my mind than all else is the general beauty of the exposition,—the beauties I might more properly say. They are indescribable. The beauties of festival outlook in the evening, when it is illuminated and when one is in a gondola gliding over the water, impress him deeply. Brisbane Walker said, "It is a good place to forget brag." It is a place where you can observe the genuine, the true, and can learn to strive to imitate it. That is what I trust we will learn in the work before us. (Applause.)

I regret very much that I have not the ability to respond in the terms in which this welcome was delivered to us, but you know our hearts are warm; you know we cordially accept your welcome, and that we shall endeavor to profit by everything which you have placed before us and which we hope to see, leaving pleasant memories behind us forevermore. (Applause.)

REPORT OF COMMITTEE OF ARRANGEMENTS.

Dr. William A. McCandless, Chairman of the Local Committee of Arrangements, made a brief report, stating that the morning sessions would begin at nine and continue until 1:30 P. M. after the first session, and that there would be no afternoon or evening sessions, thus giving the Fellows and their guests time and opportunity to visit the exposition: the Saint Louis Obstetrical and Gynecological Society would tender a reception to the Association and guests on Wednesday evening, September 14, at the Missouri State Building within the Fair Grounds; on Thursday evening the annual dinner would be served at the Monticello Hotel.

Papers were then read as follows:

1. "Operative Treatment of Painful Menstruation in Young Virgins," by William A. B. Sellman, Baltimore.

Discussed by Drs. Longyear, Hayd, Humiston, Gilliam, Brown, Asdale, Dunning, and the discussion closed by the essayist.

2. "Pseudomembranous Monocystic Tubercular Peritonitis," by H. W. Longyear, Detroit.

Discussed by Drs. Hall, Dunning, Hayd, Carstens, Gilliam, and, in closing, by the essayist.

3. "Chronic Adhesive Peritoneal Sclerosis," by N. Stone Scott, Cleveland.

On motion, the Association then took a recess until 9 A. M., Wednesday.

SECOND DAY—*Wednesday, September 14, 1904.*

Morning Session, 9 O'clock.—The President in the Chair.

4. "Vaginal Cesarean Section in Grave Cases of Puerperal Eclampsia," by J. Henry Carstens, Detroit.

Discussed by Drs. Zinke, Longyear, Stamm, Meyer (by invitation), Schwarz and, in closing, by the essayist.

5. "Purulent Cystitis with Symptomatology Resembling Appendicitis," by Magnus A. Tate, Cincinnati.

Discussed by Drs. Gilliam and Eastman.

6. "Gunshot Wound of the Abdomen—Report of a Case—Eighteen Perforations—Intestinal Resection (5 ft. 7 in.)—Recovery," by John D. S. Davis, Birmingham.

Discussed by Drs. Brown, Kirchner, Frank, Haggard, Ross, Humiston, Hayd, Carstens, Dalton, Hall, Bartlett (by invitation), Longyear, and the discussion closed by the essayist.

7. "Some Clinical Reasons for Advising Eearly Operations for Fibroid Tumors of the Uterus," by Rufus B. Hall, Cincinnati.

8. "Shall We Remove All Fibroid Tumors of the Uterus Upon Diagnosis?" By Thomas B. Eastman, Indianapolis.

These two papers were discussed together by Drs. Asdale, Carstens, Longyear, Gilliam, Zinke, Hayd, Noble, Brown, Glasgow (by invitation), Elbrecht, Sadlier, and the discussion closed by the authors of the papers.

On motion, the Association took a recess until Thursday, 9 o'clock.

Third Day—*Thursday, September 15, 1904.*

Morning Session, 9 O'Clock.—The president in the chair.

9. "The Relative Value of the Means Employed in Accouchement Forcé," by E. Gustav Zinke, Cincinnati.

Discussed by Drs. Schwarz, Ross, Elbrecht, Goldspohn, Carstens, Brown, Meyer, and the discussion closed by the essayist.

At this juncture the president introduced to the Fellows and guests Brigadier-General John Owens, M.D., Surgeon-General of Louisiana, who was voted the privileges of the floor.

10. "Removal by Vaginal Cystotomy of Skeleton of Ectopic Fetus Ulcerating into the Bladder," by William D. Haggard, Nashville.

Discussed by Dr. Glasgow.

11. Dr. Orange G. Pfaff, Indianapolis, reported a case of cyst of the mesentery, and exhibited the specimen.

12. Dr. H. W. Longyear, Detroit, exhibited an apparatus for holding bile in cases of biliary fistula called a "Bile Fistula Pad."

13. The time for the delivery of the president's address having arrived, Vice-President William D. Haggard took the chair, after which Dr. Dorsett delivered the president's annual address, the subject being "Retrodeviations of the Uterus; a Resumé of Their Surgical Treatment."

14. "Gunshot Wound of the Abdomen Involving the Hip Joint," with exhibition of patient, by L. H. Laidley, Saint Louis.

On motion, the Association then took a recess until Friday, at 9 o'clock.

FOURTH DAY—*Friday, September 16, 1904.*

Morning Session, 9 O'Clock.—The President in the Chair.

15. "Strangulated Umbilical Hernia; Report of a Complicated Case." Dr. John Young Brown, Saint Louis.

Discussed by Drs. Potter, Gilliam, Carstens, Morris, Hayd, Frank Goldspohn, Davis, Haggard, Longyear, Bartlett, and, in closing, by the essayist.

16. "Conservation of the Natural Resistance of the Patient in Surgical Work," Dr. Robert T. Morris, New York.

Discussed by Drs. Carstens, Longyear, Goldsphon, Davis, Brown and, in closing, by the author of the paper.

17. "Sterility Due to Retrodeviation of the Uterus and its Treatment, Report of Twelve Pregnancies Following the Simple Alexander Operation," by Dr. Herman E. Hayd, Buffalo.

Discussed by Drs. Goldspohn, Longyear, Gilliam, and, in closing, by the essayist.

18. "A Unique Case of Circumscribed Infection of the Placenta and Excessive Vomiting, the Cervix Uteri and Ovum Being Intact; with Remarks upon Hyperemesis Gravidarum," by Albert Goldspohn, Chicago.

Discussed by Drs. Longyear, Elbrecht, Schwarz, and, in closing, by the essayist.

Dr. Dorsett, the retiring President, in introducing his successor, said:

"GENTLEMEN: I am sure you will bear with me while I say a few words of farewell. I have been talked at for four days, but have refrained from discussing any of the many interesting questions that have come before you, though it was not because I was not tempted to do so. I interpret the functions of president to be to preside over your deliberations, and in executing them I feel that I owe an apology to Dr. Haggard, our Vice-President, as I have given him little opportunity to occupy the Chair.

"Before relinquishing the Chair to my successor, I desire to say that I feel greatly indebted to you, gentlemen, for your attendance at the several sessions, and I am sure you have made this meeting a very successful and profitable one from a professional point of

view. The papers and discussions have beeen of a high order. This meeting has been somewhat unique in that most of the Fellows in attendance have remained until the last session. This augurs well for the association, because it is hardly justice to those who prepare papers to read them before a small audience. The papers read at this meeting are of a high order and will, when published, take a prominent place in the medical literature of the year.

"I am deeply indebted to you all for the courtesy and kindness you have shown toward me as your presiding officer. It now becomes my pleasure to present this gavel to my successor in office, and I trust you will extend to him the same courtesy you did to me—a matter that does not admit of a single doubt." (Applause.)

Dr. Longyear, in accepting the presidency, said:

"GENTLEMEN: I thank you very heartily and sincerely for the great honor which you have bestowed upon me by electing me as President of this Association for the coming year and, at the same time, I want to promise you that with your cordial coöperation,—by which I might say you will be expected to do ninety-nine-hundredths of the work,—I shall endeavor to conduct the affairs of the Association in as successful a manner as has been done in the past. I hope not only each one of the Fellows present, but those also who are not here, will begin now to think of the meeting to be held a year from now. If we resolve that we are going to attend at New York and do something for the occasion, I am sure we will produce a meeting of interest and profit to each and all of us. If any Fellow is particularly interested in a subject, or his attention is occupied with interesting topics, let him determine to write about them. In this way by the time we meet next year you will gather something of value, and when we reach New York in 1905 we will bring with us material that will serve to make the meeting famous." (Applause.)

On motion, the Association then adjourned.

WILLIAM WARREN POTTER,
Secretary.

EXECUTIVE SESSIONS.

Tuesday, September 13, 1904.

The President, Dr. W. B. Dorsett, in the Chair.

On behalf of the Executive Council, the Secretary presented a list of applicants for Fellowship, after which the Association elected by ballot the following-named candidates:

Charles E. Congdon, Buffalo; George E. Goodfellow, San Francisco; O. H. Elbrecht, Saint Louis; Louis E. Newman, Saint Louis; Francis Reder, Saint Louis; L. C. Morris, Birmingham; Henry Schwarz, Saint Louis; William S. Smith, Baltimore; John A. Sutcliffe, Indianapolis; James N. West, New York.

The Secretary, on behalf of the Executive Council, stated that the Saint Louis Obstetrical and Gynecological Society had been invited to attend the sessions, and sumbitted a list of names of members of the local medical profession, and of other cities, who were invited to take part in the proceedings as members by invitation.

The Secretary presented the accounts of the Secretary and Treasurer, stating that they were ready to be audited.

The President appointed as an Auditing Committee, Magnus A. Tate and Louis Frank.

Adjourned.

Thursday, September 15, 1904.

The Executive Session was called to order by the President immediately after the adjournment of the scientific session.

The Auditing Committee reported having examined the accounts of the Secretary and Treasurer, and had found them correct, with a balance of $135.68 in the treasury.

On motion, the report was adopted.

The next order of business was the election of officers, which resulted as follows: *President,* H. W. Longyear, Detroit; *Vice-Presidents,* D. Tod Gilliam, Columbus, and John Young Brown, Saint Louis; *Secretary,* William Warren Potter (reëlected), Buffalo; *Treasurer,* X. O. Werder (reëlected), Pittsburg. To fill vacancies in the Executive Council, James F. W. Ross, Toronto, and Walter B. Dorsett, Saint Louis. The Secretary, in accordance with instructions, cast the ballot of the Association in each instance.

New York was selected as the place for holding the next annual meeting, the date of which was left to the decision of the Executive Council. This was afterwards fixed upon by the Council for Tuesday, Wednesday and Thursday, September 19, 20 and 21, 1905.

On motion of the Secretary, Drs. Hayd, Abrams and Sadlier were appointed a committee to draft resolutions expressive of the splendid manner the Association has been entertained.

The Secretary stated that it was now the custom of many special societies to have synopses of papers printed in the official program. The advantages of this were that it gave the Fellows an opportunity to prepare their discussions in advance, and to those who came in late an opportunity to discuss papers which they had not heard with a considerable degree of intelligence. It also gave a guest, who had been invited to take part, an opportunity to make a creditable argument on the floor in discussing the papers. It had been found difficult to get such synopses to print in the official program, which should be issued about three weeks before the meeting. He urged the members to take this matter into consideration for the forthcoming New York meeting, as these synopses would make a creditable program. They should be sent in at least by August 25th each year.

Dr. Carstens called attention to the fact that during this year one of the Fellows (Dr. John Milton Duff) had died, and urged that appropriate resolutions be drafted in regard to Dr. Duff.

On motion of Dr. Ross, Dr. Asdale was appointed a committee of one to prepare a memorial of Dr. Duff, to be published in the Transactions.

Drs. Ross and Asdale were also appointed a committee to draw up suitable resolutions relative to Dr. Duff for action at this meeting. This committee reported as follows:

Whereas, In the recent removal by death of John Milton Duff, A.M., M.D., Ph.D., late of Pittsburg, Pa., one of the distinguished Fellows of this Association, we desire to place on record our appreciation of the great loss we have sustained.

Therefore, *Resolved,* That while submissive to the Divine decree, we shall miss one of our most genial and earnest workers. Taken from us while yet much younger in years than many of us, and while still in possession of great manly strength, actively interested as he had been in the good works of his profession as teacher, and as practitioner, almost until the last days of a busy life, we feel that we have been deprived too suddenly of the friendship and support of a worthy and strong man.

Resolved, That we sympathize with his family and friends, his wife and children, and with the community which has lost an exemplary citizen; his country, a patriot and soldier, and with his profession, which has lost an able man, one of fidelity to principle, and of extraordinary hardihood of character. Our association, too, loses an affable associate and a valuable co-worker.

(Signed) W. J. Asdale,
James F. W. Ross,
Committee.

Dr. Hayd, Chairman of the Committee on Resolutions, presented the following:

The Seventeenth Annual Meeting of the American Association of Obstetricians and Gynecologists has just completed its sessions, which in every respect have been interesting, profitable and entertaining. The character of the papers has been equal to our usual high standard, and the discussions also have been able and instructive. The subjects dealt with were of great importance, and the Association has again contributed something of value and usefulness to the literature of medicine.

The Association, meeting in St. Louis during the great exposition season, has been afforded unusual opportunities to see its wonderful exhibits, and at the same time to have enjoyed pleasant courtesies and attentions from the city members of our Association, as well as from the Saint Louis Obstetrical and Gynecological Society, and your committee takes this opportunity to move the following resolutions:

Resolved, That the Association hereby tenders its thanks to the President in his capacity as Chairman of the Committee on Arrangements, and to his colleagues on the committee who have provided us with hospitalities and extended courtesies, all of which we duly appreciate. And especially do we desire to express our gratification and delight for the charming entertainment provided at the banquet. Be it further

Resolved, That our thanks be extended to Mr. L. C. Irvine, the manager of the Monticello Hotel Company, for the many attentions we have received at his hands.

(Signed) EDWARD T. ABRAMS,
JAMES E. SADLIER,
HERMAN E. HAYD.

On motion, the resolutions were unanimously adopted.

As there was no further business to be transacted, the Executive Session then adjourned.

WILLIAM WARREN POTTER,
Secretary.

PAPERS

READ AT THE

SEVENTEENTH ANNUAL MEETING

OF THE

AMERICAN ASSOCIATION

OF

OBSTETRICIANS AND GYNECOLOGISTS,

HELD AT THE

HOTEL MONTICELLO,

Saint Louis, Mo.,

SEPTEMBER 13, 14, 15 AND 16, 1904.

THE PRESIDENT'S ADDRESS.

RETRODEVIATIONS OF THE UTERUS; A RÉSUMÉ OF THEIR SURGERY.

By WALTER BLACKBURN DORSETT, M.D.,
ST. LOUIS.

It would certainly seem very ungrateful should I not express my thanks for the honor the members of this Association have conferred in electing me to the presidency, a distinction that came unexpectedly and unsolicited. Well should I feel proud of the honor when I realize that this Association stands as a peer among bodies of its character in this country. The character of the work that has been done at least equals in quality and quantity that of any other like organization. From among its membership have been chosen presiding officers of nearly all the leading societies of the United States. It would be idle to assume that there is any other reason for this, aside from that of fitness. This preparedness comes from the thorough training of these men in their daily work, as well as from the debates and the production of thoroughly scientific papers that have appeared from year to year in the transactions of this organization.

When we realize that our productions are read and accepted, and, in many instances adopted as a rule of practice by specialists, we should be stimulated to maintain the standard of work to which we have aspired from the beginning of our existence. Among the subjects that have been most thoroughly discussed and the teachings accepted as the most rational, are appendicitis, the management of inflammatory diseases of the uterine adnexa, gall-bladder surgery as elucidated by our late and lamented Fellow, Dr. W. E. B. Davis, restoration of the female perineum, and the various operations for the relief of the retrodeviated uterus.

In casting about for a subject upon which to address you I have

selected the latter. The chief reason for this is that of all the cases that present themselves to the gynecologist, they are the most common. It would probably not be an exaggeration were I to state that two-thirds of the work that falls into the hands of the busy gynecologist is of this character. A minority are uncomplicated, while a majority are, or have become, almost unmanageable, and often demand surgery of the adnexa plus surgery to relieve the retrodeviation.

It is not my purpose to speak at length as to the etiological factors that more or less remotely enter into the consideration of the condition, but rather to speak of the excellent operative work that has been accomplished within the past fifteen years, so that what I may have to say is in the nature of a résumé of what has been done surgically to relieve it. I believe the future has yet in store for us the most rational and perfect operation, and that so far, however laudable may have been our efforts, we have not arrived at the acme of perfection.

METHODS OF OPERATION.

The different methods of accomplishing the reposition of the uterus may be classified according to the route selected by the advocate of each. They may be divided into three classes—namely, extraperitoneal, vaginal, and intraabdominal.

CLASS I.—Extraperitoneal, according to Alexander, Alexander-Adams, Goldspohn, Longyear, and others (the Alexander operation), was first performed by Alexander, of Liverpool, December 14, 1881, and reported January, 1883. It consists in shortening the round ligaments through the inguinal canal. The objections that have been offered to this operation are, first, that it is applicable only to uncomplicated cases, where there are no fixations and no lesions of the adnexa. Second, hernia is apt to follow, as is also sloughing of the parts involved. These objections have been greatly removed by our Fellow, Dr. A. Goldspohn, who dilates the internal abdominal rings, and through this dilated opening frees the adhesions, inspects the adnexa, and, if necessary, removes diseased ovaries and tubes.

The Alexander-Adams operation dates from 1886, and consists of an incision parallel to Poupart's ligament, 5 cm. long, ending on the spine of the pubis. This incision goes as deep as the aponeurosis. Imlach's fat indicates the external inguinal ring, which is brought to view. The round ligaments are separated on

both sides. An assistant brings the uterus into anteversion, the round ligaments being pulled and shortened for 8 to 10 cm. The ligaments then are sewed to the external inguinal ring.

Some operators incise the whole inguinal canal. Others do not remove parts of the round ligaments, but fold them and sew them on the aponeurosis and soft parts. Others, again, fix the round ligaments along the whole length of the inguinal canal. Cassati makes the incision above the symphysis, crosses the round ligaments and sews them on the subcutaneous tissue. Kocher pushes the round ligaments, after they have been pulled out, under the median skin-bridge and sews them there. German gynecologists prefer the Alexander-Adams operation in these cases.

The method of Rumph, with modifications by Flaischlen, consists in an incision 1 cm. above the symphysis and Poupart's ligament, through the skin, the fat of the mons veneris and the fascia superficialis. The bleeding is controlled, and at the lateral wound-corner dissection of the aponeurosis of the external oblique muscle is made. The fat tissue is pushed backward in the median direction toward the tubercle of the pubis. In doing this the external inguinal ring comes into view. The inguinal ring is now incised laterally for 3 to 4 cm. The round ligament lying in the inguinal canal is now carefully isolated with a blunt instrument. Rumph then pulls the round ligament and separates with the finger the white peritoneal funnel from it. This is done on both sides. By pulling both round ligaments the uterus is felt against the abdominal wall. Both ligaments are now fixed by a silkworm gut suture in the lateral wound-corner of the aponeurosis, and are further fixed by sutures of silkworm gut or catgut at the inside of the aponeurosis. From the lateral end of the round ligaments 8 to 10 m. is removed and the wound is then closed.

From 1898 to 1901, 212 operations for retroflexio-uteri were done in the clinic for female diseases at Berlin—namely, 98 ventrofixations, 90 vaginal operations, and 24 Alexander operations. Of these operations 150 were done in connection with other operations (62 ventrofixations, 82 vaginal fixations, 6 Alexander operations). Fifty-seven of the operations were done only for retroflexio-uteri (36 ventrofixations, 3 vaginofixations, 18 Alexander operations).

During the same time 23,348 patients were treated, of which 2,335 (10 per cent.) had retroflexio-uteri; so that the operation for retroflexio-uteri was done only in 10 per cent. of the patients suffering from this trouble, as shown by the following table:

	1898	1899	1900	1901
Ventrofixation only	14	11	6	5
Ventrofixation with other operations	16	26	10	10
Alexander-Adams only	2	5	7	4
Alexander-Adams with other operations	0	1	3	2
Vaginofixation only	1	2	0	0
Vaginofixation with other operations	5	21	26	35

Ventrofixation was most frequently done when tumors, perityphlitis or inflammatory conditions of the adnexa were present. The Alexander-Adams method is more and more done in uncomplicated retroflexions and retroversions.

The details of the technic are simple, and begin with shaving the field and a warm bath on the evening before the operation. General anesthesia is advisable. Slight adhesions of the uterus, if present, are removed or loosened after the method of Schultze, or by operative procedure in the vagina. The patient is placed in the horizontal position. Operation: locate external inguinal ring a little above and lateral to the tubercle of the pubis; from this point an incision 6 to 7 cm. long is made, about 2 cm. above and parallel to Poupart's ligament. (Kocher makes an incision 15 cm. long to the anterior superior spine of the ilium. Kummell's incision is 12 cm. long.) Bloodvessels are caught and tied, especially the external spermatic vessels and superficial epigastric, which go over the field of operation. Then the movable layers above the fascia of the external oblique muscle are cut. The fascia is dissected with a blunt instrument, especially in the corner of the symphysis. The external inguinal ring is felt as a triangular hole near the tubercle of the pubis, where the inferior border of the external inguinal canal is attached. Imlach's deposit of fat may serve here as a guide.

In opening the inguinal canal, bring a closed surgical forceps from the inguinal ring into the canal, spread it, cut with a scissors the roof of the canal for about 3 cm. parallel to Poupart's ligament. The edges of the fascia are fixed with forceps. The contents of the canal are now caught near Poupart's ligament with a forceps and drawn outward. A second forceps is brought deeper and catches the round ligament. The first forceps serves as a dissecting instrument. Fixed in an artery forceps the round ligament is pulled out for 10 to 12 cm., and isolated from the tendon and muscle fibers. The peritoneal funnel is now seen, which is to be pushed backward from the thicker part of the round ligament with a blunt forceps. Resection of 8 to 10 cm. of the round liga-

ment follows between two forceps. The central end is now fixed in the direction of the round ligament in the inguinal canal. In doing this the ligament is pulled up. A catgut suture catches Poupart's ligament, one-third of the diameter of the round ligament, and the edge of the aponeurosis of the external oblique muscle. Next the canal is now closed by three to four sutures through the internal side of Poupart's ligament, through the round ligament, and through the internal oblique muscle. A circular ligature is applied to the short piece of the round ligament and it is returned to the inguinal canal. The roof of the fascia is closed with catgut sutures, closing also the external inguinal ring.

Before closing the skin one or two layers of deep sutures are made through the fascia superficialis and fat. Drainage is not necessary. Cover with aseptic gauze and do the same procedure on the other side. The wound is covered with iodoform gauze, adhesive plaster and bandage. Dr. Peters did this operation on forty patients with no death and no return.

Class II.—Via vagina, according to Mackenrodt, Wertheim, Ries, Gottschalk, Pryor, Koblanck, and Dührssen. Wertheim makes an opening in the anterior vaginal fornix, and through this opening he brings the round ligament and stitches it to the edges of the vaginal opening. It is dangerous because the work is done through the vagina. Ries, of Chicago, 1901: through an opening in the vaginal fornix he exposes the fundus uteri and through a slit on the anterior surface of the uterus pulls the round ligaments from opposite directions and fastens them in this position. Gottschalk opens the posterior vaginal fornix and shortens the utero-sacral ligaments. As the cervix was raised up the fundus must necessarily fall forward. Its usefulness is doubtful. Pryor made an incision transversely in the posterior fornix and then packed gauze in the cul de sac of Douglas, and in this manner pushed the fundus forward, when adhesions form, thus holding the uterus in place. Dangerous on account of sepsis from the vagina.

Vaginal Fixation—Koblanck's Method.—The fundus of the uterus is caught and pulled downward; incision in and removal of a long oval from the anterior wall, pushing the bladder backward, opening of the vesico-uterine fold from one side to the other; pulling forward the uterus with a finger or Muzenx's instrument; loosening the adhesions of the uterus, tubes, and ovaries. The insertions of the round ligaments are now sutured with a thick catgut thread. The end of the catgut thread is again brought through

the eye of the needle and then the double thread is brought through the upper and lower part of the plica vesico-uterina. A fixation of the threads at the inside of the wall of the vagina about midway between the cervix and orifice of the urethra is made. The other corner of the uterus is fixed in the same way, and finally suture of the peritoneum and vaginal wall is made.

Intraperitoneal Fixation of the Uterus, Starting at the Vagina.—Sigmund Gottschalk does the operation as follows: the cervix is incised anteriorly at the insertion of the anterior vaginal wall; the bladder is separated from the cervix with the second finger; the bladder is then held back with a ligature through the anterior edge of the vaginal wound and with an anterior vaginal speculum; the plica vesico-uterina or the fascia comes to view, and is caught with two clamps and cut with scissors from right to left. This cut is enlarged at both sides until it has the length of the largest diameter of the corpus uteri. The peritoneum of the plica is divided by this incision into a larger anterior vesical part, and a smaller posterior uterine part. Both parts are caught at their right and left ends by clamps. The anterior clamps are pulled forward and the posterior backward. The corpus uteri is brought through the large oval-shaped hole so that the fundus comes forward. Adhesions are detached before by the method of Schultze. The operator pulls the vesical part of the plica downward by means of the clamps and stretches it out over the anterior wall of the corpus uteri. An assistant applies the uterine part of the plica in the same way. Horizontal sutures are now made through the corpus uteri (anterior wall) and the peritoneal parts of the plica. Three of these sutures are made within a distance of 1 cm., one from the other, starting the first one 1 cm. below the fundus uteri. When all are applied they are tied. After that the vesical and uterine parts of the plica are united and the abdominal cavity closed.

Operation for Retroflexed Uterus.—A. Mackenrodt, 1888: this is first a resection of an oval from left to right from the anterior wall of the uterus at the height of the os internum uteri, after loosening the bladder; then opening the perineum; next suture of the uterine wound with the peritoneum, and finally suturing of vagina over the suture through peritoneum and corpus uteri.

The following modifications with dates when suggested are given: 1894, only the peritoneum of the bladder connected with the uterus—vesicofixation; 1898, vaginal fixation with opening of

the peritoneum, moving the vesico-uterine cul de sac 1 to 1½ cm. higher, and fixing the vagina directly on the corpus uteri.

Mackenrodt's operation is performed as follows: catch cervix with two bullet forceps, pull downward; catch anterior vaginal wall at the height of the os internum uteri; (1) cut through the stretched fornix vaginæ to the cervix (length cut), (2) make a cut from right to left over the cervix (width cut); loosen the flaps; cut through the septum vesico-vaginale; push the bladder upward to the plica peritonei; open the vesico-uterine cul de sac from the right to the left; apply bullet forceps to the anterior wall of the uterus about 1½ to 2 cm. higher than the os internum uteri; catch the bladder peritoneal wound-edge with clamps and remove the bullet forceps from the cervix. The finger now pushes the cervix upward and the bullet forceps at the corpus uteri pulls this forward and downward. The bladder peritoneum is attached to the anterior wall of the uterus with one catgut suture, by which procedure the vesico-uterine cul de sac is closed below. Through the uterine wall just under this fold is brought a thick catgut thread, just under the point where the bullet forceps caught the uterine wall. The bullet forceps is now removed and applied at the anterior labium of the uterus and pulled downward. The opening in the vaginal wall from left to right is then closed, starting from the middle and going to both sides. The length incision is still open, through which the thick catgut thread hangs out. At both ends of this thread is now attached a needle, one of which is brought through the vaginal wall to the left and the other to the right. Before tying this thread the length-cut is closed with catgut sutures, then the thick thread is tied. An iodoform gauze tampon is placed in the vagina, pushing portio backward.

T. A. Alexandroff's operation is done as follows: specula in vagina; uterus pulled downward; half oval incision, convex below, through anterior fornix vaginæ; flap dissected and with the bladder high up separated; apply Landau's speculum; ligamentum latum made free at one side and through the base of the ligamentum latum is brought a ligature to within about 3 to 3½ cm. from the cervix uteri. The finger is brought under the posterior inferior side of the base of the ligamentum latum. The fibers at the base of the ligament are caught with the ligature—altogether about 1 m. thick. The same is done at the other side. The uterus is brought into anteversion and released by the bullet forceps. The ligatures of both sides are now crossed and pulled in opposite directions by an assistant. The peripheral ends of the bases of

the ligamenta latæ come together at the anterior wall of the cervix uteri. There they are connected by two or three sutures, catching at the same time the tissue of the cervix. The fornix wound is then closed, and if necessary the spatium præveriale drained.

Dührssen's Method.—Years ago Dührssen operated as follows: First loosening parametric and perimetric adhesions after the method of Schultze; disinfection of external genitalia and surroundings with 1 per cent. lysol solution; same for vagina. A Simon's speculum is applied in the posterior vagina; the anterior lip of the cervix is caught with two bullet forceps and the uterus irrigated with 1 per cent. lysol solution and then curetted; the bladder is pushed forward and upward with a male catheter; the cervix is pulled into the vulva; incision of 1 cm. is made superficially from right to left over the insertion of the anterior vaginal wall at the cervix; the upper wound edge is caught with a bullet forceps and pulled upward. The incision is now made deeper and to both sides 1 cm. larger. The fascia over the fornix vaginæ is cut and the left second finger separates the bladder from the uterus.

Then a probe, bent as a Fritsch-Bozemann's catheter, is brought into the uterus. The assistant brings the handle of this probe downward, and in doing this he brings the fundus uteri toward the second finger of the operator. Guided by this finger the operator catches the anterior wall of the uterus as high as possible with a silk ligature from left to right. This ligature is not tied, but strongly pulled downward by an assistant. If necessary a second, third and fourth ligature is applied in the same way higher up. By pulling these ligatures it is possible for the operator to apply three sagittal sutures through the anterior vaginal wall and the uterine wall. These last three sutures are tied and the first applied ligatures removed. The wound from right to left in the fornix vaginæ is then closed with a catgut suture. After removing the uterine probe the uterus is washed out and the vagina tamponed with iodoform gauze. Nowadays Dührssen uses silkworm gut instead of silk, and brings this through the whole thickness of the vaginal wall. He removes this four to eight weeks after the operation. Besides, he has changed his method of suturing the vaginal wound in this manner—namely, that the wound is tied up in a horizontal direction, making the wound remainder sagittal, by which method the cervix is pressed backward.

Class III.—Intraperitoneal, ventro-suspension or ventro-fixation, either by apposition of uterine peritoneum to abdominal

peritoneum, or suspension in one way or the other by the round ligaments, through an incision made through the anterior abdominal wall and into the peritoneal cavity, as practised and recommended by Olshausen, Kolbanck, Kelly, Alexandroff, Tod Gilliam and Dorsett. Ventro-suspension will always be connected with Olshausen, who first published an account of his operation in January, 1889. Kelly's operation consists in attaching the posterior surface of the fundus uteri to the abdominal peritoneum, thus forming a peritoneal suspension of the uterus. This procedure is hazardous in the extreme, on account of the danger of entanglement of the bowels in resultant adhesion bands. Palmer Dudley folds the round ligament and then stitches it to the anterior surface of the uterus. In Baldy's operation the round ligament is severed near its attachment to the uterus and the pelvic end is drawn through an opening in the broad ligament and stitched to the posterior surface of the uterus. Martin, of Chicago, described an operation, November 19, 1897, whereby he suspends the uterus by means of a ribbon of peritoneum taken from one side of the abdominal incision and stitched to the fundus of the uterus. The same objection is applicable to this operation. Fowler used the urachus to suspend the uterus. The same objection maintains. Tod Gilliam suspends the uterus by means of the round ligaments in the following manner: a sharp pointed forceps is pushed from without inward through the rectus muscle and its fascias and the peritoneum. Now the round ligament is grasped by the forceps and pulled through the opening and stitched to the fascia. Thus the round ligaments are used to support the uterus. Where the round ligament is not in a state of atrophy this is a most excellent operation.

Olshausen's operation, 1886—ventrofixation: the patient lies with the pelvis high; median incision is made and the peritoneum opened; if adhesions are present these are loosened; both uterine cornua are now fixed to the anterior abdominal wall with two to three sutures. The sutures are applied around the round ligament insertions and go through the parietal peritoneum and the muscles. After that the abdomen is closed by sutures in three layers. Leopold Czerny attached the anterior wall of the uterus just below the fundus to the anterior abdominal wall. Kaltenbach sought to eliminate the danger of secondary laparatomy and attached the fundus to the periosteum of the symphysis by a silver thread going through the periosteum, peritoneum and anterior wall of the uterus. Kustner makes a cross incision. The skin is incised from the left to the right above the symphysis; the muscles

and peritoneum are cut in the linea alba and the uterus attached there. Noble's operation is a modification of this; so is Oviatt's. Fritsch attaches only the peritoneum of the uterus to the peritoneum of the abdominal wall. Byford folds the round ligaments anteriorly and stitches the loop thus formed to the abdominal wall at a point just above the internal abdominal ring. Mann's operation consists in folding the round ligament into the shape of the letter "N." He then stitches the edges together and thus secures extensive adhesions of a folded ligament. Czempin elevates the uterus with a peculiarly shaped probe and sews the fundus to the recti muscles without opening the abdominal cavity. This need only be mentioned to be condemned.

It may be of interest to here quote from an important dissertation which appeared in the *Berliner Medicinische Wochenschrift*, 1901, Vol. 38, pp. 579, 610: Ueber einige Beziehungen der Retroflexio uteri finata zu Schwangerschaft, Geburt und Wochenbett, von Dr. Franz Lehmann. Relation between Retroflexio Uteri Finata and Pregnancy, Labor and Puerperium.

Pregnancy.—A retroflexed uterus is sometimes the cause of sterility. If the woman becomes pregnant, most frequently abortion occurs; if not, there is great danger of the uterus becoming incarcerated. (This, according to my experience, is not true.) It may be that the adhesions grow longer, and that we are able to bring the uterus into the vertical position, or that spontaneously this position is regained, but this is rare. As reasons for spontaneous reposition of the uterus Lehmann gives, (1) hypertrophy of the round ligaments, which pull forward and lift the fundus uteri; (2) by the congestion of the uterus and adnexa the adhesions become more soft and elastic and do not pull so strongly backward; (3) he thinks that the place where the ovum is attached to the uterus also has something to do with the spontaneous reposition, as this may change the equilibrium of the uterus; (4) the character and location of the adhesions may allow reposition; (5) contractions of the uterus during pregnancy seem to lift the uterus.

Labor.—When pregnancy comes to an end and labor sets in, as a rule the pains are very severe. Version and extraction of the fetus are advisable as soon as possible, as rupture of the uterus may occur.

Puerperium.—Danger: diseases of bloodvessels and thrombosis. Lehmann had in five cases, twice thrombosis of both venæ femoralis and once embolus in the pulmonalis. Thrombosis of the deep pelvic veins sometimes occurs.

When we realize that in the majority of instances we do not have retrodeviations of the uterus that are not complicated with inflammatory diseases of the adnexa it becomes apparent that the field for operative work, outside of the peritoneal cavity, is necessarily narrow. Many of these uncomplicated cases can be relieved of their sufferings by the use of the Albert Smith or Hodge pessary. While many patients of this class can and do wear pessaries for an indefinite length of time, it must not be assumed that the proper adjustment of a pessary necessarily condemns the patient to its use for the remainder of her life. Pessaries are particularly applicable to acute cases following labor.

It will be seen I have indulged in some criticism of the different methods of operating. I am constrained to do this for the reason that according to my belief they do not merit the prominence they have attained in the estimation of the profession at large, and for the reason that no man can arrive at a proper conclusion as to the best method of relieving the suffering woman without a careful study of the different methods. If one operation is in accord with the accepted idea of proper surgical technic, the other certainly is not. When we consider the great diversity of opinion as to which is right and which is not, without a proper appreciation of them all, we certainly are at a loss as to the choice of operations. In my opinion we should not consider any operation that does not contemplate the possibility of a thorough inspection of the adnexa from above the pubic bone. I would discard the entire class of operations that contemplate vaginal incision, either anteriorly or posteriorly, on account of the greater liability of sepsis, as well as from the impossibility of anchorage to firm structures.

While ventrosuspensions and ventrofixations have been condemned as unjustifiable, it is because only the fixation or suspension that is accomplished by anteverting the uterus and stitching the fundus, or perchance, the posterior uterine wall, to the abdominal wall, has been considered. It is reasonable to assume that this unnatural suspension or fixation is a causative factor in the production of lengthened adhesion bands, which entangle the bowel and act as a barrier to the proper development of the pregnant uterus. If, however, a lower segment of the anterior uterine wall is attached lower down on the abdominal wall and the omentum is allowed to drop to or behind the uterine fundus, the bugbears of necessary Cesarean sections in labor cases and entangled bowel will be less feared. My own work in obstetrics and with this operation justifies this statement.

OPERATIVE TREATMENT FOR PAINFUL MENSTRUATION IN YOUNG VIRGINS.

By WILLIAM A. B. SELLMAN, M.D.,
BALTIMORE.

A GREAT necessity of giving relief to young unmarried women who suffer pain before or during menstruation has long existed. I am surprised to learn that highly educated, intelligent and skilful members of our profession frequently inform young women and their mothers that these conditions are natural, and more or less pain and discomfort are of necessity experienced at these periods. In these later days, when the anatomy and pathology of the female generative organs are so thoroughly understood, since our previous ideas of what occurs at this period have been proven to be untrue and we are now certain that we understand what does take place, and why menstruation should be a natural and painless cycle, I believe in very many cases relief can be given these sufferers through minor surgical procedures.

Cullen tells us: "The general teaching is that at the menstrual period there is a distinct loss of substance, the surface epithelium and superficial portions of the mucosa undergoing fatty degeneration and necrosis, and later being thrown off. The mouths of the vessels are thus laid open, allowing free menstrual hemorrhage: regeneration is said to follow rapidly."

This theory at once impresses not only the investigator but also the clinician as a very unusual and crude manner for Nature to bring about the menstrual flow, and quite unlike the orderly and simple way in which the various functions normally take place. For several years Cullen has paid special attention to this point, and thus far has always found the mucosa intact throughout the monthly period, there being no loss of substance whatsoever. The mucosa during menstruation is usually somewhat thickened. The surface epithelium is normal and slightly swollen, the glands are somewhat tortuous, but otherwise normal. The veins are usually dilated, the stroma in the deeper portions is unaltered, but near the surface many red corpuscles are found lying between the stroma cells. They are also present between the epithelial cells of the glands and those of the surface epithelium, and are also

abundant in the gland cavities and on the surface of the mucosa. The walls of the veins in the mucosa are very delicate, and it is easily understood how it can happen that, with the increased blood pressure present at the monthly period, there should be a diapedesis of the red corpuscles into the loose stroma, whence the blood can easily find its way to the uterine cavity, which is directed downward, and favors the free escape of the flow. It is a matter of common observation that unless the mucous membrane is very carefully handled the surface epithelium may be rubbed off, and he has also seen at the menstrual period the mucosa is somewhat thickened, and that the superficial portions are filled with blood. Thus the chance of losing the superficial portions, unless very careful technic be employed in hardening and mounting, is greatly increased. Dr. Cullen claims that no destruction of the mucosa takes place at the menstrual period.

Johnstone, of Cincinnati, claims that the endometrium is a lymph tissue and that the lymphoid character of this tissue begins with menstruation and lasts until the menopause. Previous to this the endometrium is composed of very fine sustenticular threads, which seem to lie perfectly dormant and, like the hair follicles, before puberty has no functional activity. After the menopause this tissue is thoroughly worn out. He holds that the endometrium belongs to that class of organs whose function is to replace organic waste, and that it should be ranked with the spleen and thymus gland instead of with the vagina and bladder. The condition necessary to the production of the placenta is one common to all animals, and is what is known as the adenoid state. This adenoid state is always present in the child-bearing uterus of the human being. He believes that the erect position is responsible for menstruation and that it is brought about by the control of the nervous system and not through ovarian influence. He says that there is a loss of only a single layer of columnar epithelium which lines the cavity of the body and the utricular follicles. Where there is a wholesale shedding it is a pathological condition.

Dr. D. Tod Gilliam says, "menstruation has its proper provisions and preparations for the act, and that all things may work in harmony and without violence. The ripe fruit falls of its own accord, the green fruit holds tenaciously to its stem. The exfoliation of the endometric epithelium at stated intervals is physiologic; it disintegrates and drops off as the hairs of the head. The decidual teeth of the infant and the skin of the serpent are

thrown off with ease, because they have served their purpose and are prepared for the change. Under normal conditions and at the proper time the endometric epithelium becomes detachable and, having lost its cohesiveness, is pushed off by the capillary effusion."

Leopold and Gebhard both believe in the diaspedic theory of menstruation. That is, the escape of the accumulated blood is through the interstices between the epithelial cells, which are pushed apart and some of which may be carried away by the blood as it forces its way out. There is also some desquamation of the glandular epithelium. We must allow the truth of the proposition that dysmenorrhea is a symptom, not a disease. There is always a cause for the symptom—namely, mechanical obstruction to the escape of blood from the uterus, due to stenosis of the cervical canal and displacement of the uterus.

A great diversity of opinion prevails as to operating upon virgins for the purpose of overcoming the condition termed stenosis, and the methods suggested are many. Almost every gynecologist has some technic of his own, and it is very difficult to secure his endorsement of the method of his co-workers in the same field. Carstens recommends in cases of undeveloped uteri the introduction of a stem pessary, and does not hesitate to lose sight of his patient for a considerable period of time. Longyear fails to endorse this treatment and, although using his own special metal intrauterine stem, desires to keep his patient under observation, for fear of the development of pain and perhaps an inflammatory condition, due to the presence of this foreign body in the uterus. The method of G. Kolisher, consisting of slitting open the cervix by bilateral incisions, excision of a wedge-shaped piece of the tissue from either side, and final closure of the incision by sutures, is an operation of doubtful expediency.

Under the analgesic influence of cocain, or the more decided and permanent effect of ether or chloroform, we can by rapid dilatation with one of many dilators which have been placed upon the market, stretch the uterine canal and overcome the contraction which exists. In my office practice I frequently introduce upon a small cotton-wrapped applicator a 10 per cent. solution of cocaine, allowing it to remain in position for 15 to 20 minutes; after removing it I introduce a Molesworth dilator, using this instrument on account of its exerting a gradual and evenly distributed dilating force within the uterine canal. Several sittings may have to be made before we have secured the amount of dilatation desired. I

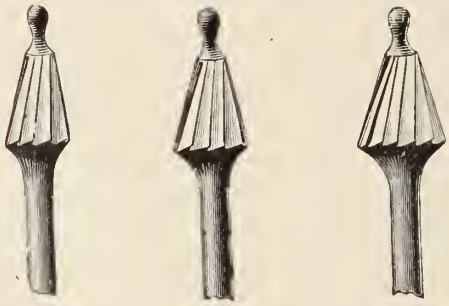
frequently introduce an Outerbridge wire stem within the canal, using the smallest size that can be retained, as we do not desire much pressure to be exerted upon the sides of the canal. It is far wiser to commence with a small size and gradually increase.

It is surprising how little pain—upon many occasions none at all—is developed by the use of these wire splints. There are many cases in which the tissues are so dense that this dilator will make no impression upon them. In such cases I make use of a Goodell dilator or one of the other instruments of the same type. There is another class of patients on whom no dilator will make any impression upon the tissues or where, if a powerful stretching instrument is used, there is danger of tearing the structures in place of dilating. It is in these cases that the reamers devised by myself do such effective and safe work.

These instruments which I bring before you for examination I have made use of for ten years at least. Not in a single instance, when handled properly, have I witnessed any injury inflicted by them, and I have record of a large number of instances in which they succeeded in overcoming the condition of stenosis or obstruction when every other means had failed. They are made of three sizes, are cone or olive shaped, with moderately sharp knives cut into their lateral surfaces. There is a blunt end or point in order to prevent perforating the walls of the uterus, especially when placed in the hands of the operator inexperienced in their use. Under the relaxing effect of the anesthetic which should always be administered, the small-sized instrument is slowly introduced until it is felt in contact with the point of contraction. Then the instrument should be given several twists toward the right, at the same time exerting a slight pressure upward. This is very essential in order to engage the dense tissue against the sharp edges of the knives of the reamer. If the tissue is very dense one can hear it cutting against the tough substance, as if you were encountering gristle. Gradual pressure should be persisted in, maintaining the twisting motion, until the entire instrument slips into the cavity of the uterus. The reamer should then be withdrawn, and with a small curet the tissue which has been operated upon should be examined; but if there is a sensation of scraping dense tissue the curet should be withdrawn and the second size of reamer introduced and used in the same manner as No. 1 was manipulated, and again a test made with the curet.

Sometimes it is required to smooth the surface with a sharp

curet where shreds of tissue resist the knives of the reamer. The temper and shape or angle of the knives are so adjusted that they will refuse to cut away normal mucous membrane; it is only the hard and the diseased structures that will be attacked by the instrument. I generally pack the uterine canal with iodoform tape, allowing it to remain three days before removal. After removing the packing I suggest going over the surface with a small and moderately sharp curet. The uterine canal is then packed again and three days later this is removed and the canal swabbed with the officinal tincture of iodine. The patient is not examined again until after the next menstruation, when a small, dull curet is passed above the internal os. I often introduce an Outerbridge



Sellman—The reamer in three sizes.

wire-stem pessary, allowing the patient to wear it within two days of expected menstruation. Very often the flow will come on a few days previous to the expected date and the patient will menstruate with the pessary in position. Many patients all say that they have never suffered less pain during menstruation than at this period, when the pessary was retained. I have never seen a strictured condition of the uterine canal develop after this reaming operation was performed, if the after-treatment is properly carried out.

Upon numerous occasions I have seen an anteflexed or a retroflexed uterus immediately righted as soon as this gristle tissue was removed. It acted as a drawstring, or as a string to a bow, and as soon as it was severed the uterus was allowed to assume the normal position. The ancient operation of incising the neck of the uterus, producing an artificial lacerated cervix uteri, is obsolete and certainly not justifiable.

Besides stenosis we have another cause for dysmenorrhea—namely, inflammatory conditions of the uterine mucosa or

parenchyma. When a young unmarried woman is suffering metritis or endometritis, there exists a most sensitive condition of the organ, and she is likely to experience pain before as well as during menstruation. These conditions must receive their proper treatment and the menstrual pain be considered as a result or secondary symptom to the primary disease. It does not, however, come within the province of this paper to enter into the treatment of these conditions, but I would insist upon curetment being carried out in these cases in order to open the closed orifices of the glands in the endometrium; and the curet, besides, opens the capillaries so that a certain amount of hemorrhage occurs that relieves the condition of congestion which prevails in the uterine tissues. The lymph spaces are, at times, so crowded or filled up that the normal discharge of blood cannot take place, and the patient imagines that she has not menstruated. She experiences the dragging pains around her hips and the sensation of weight which she has felt for some time immediately before the menstrual flow appeared, but the discharge fails to put in its appearance. In these cases, if we puncture the cervix with Buttle's scarificator and allow a free discharge of blood, the headache and sense of weight in pelvis will be almost instantly relieved.

Stinson's suggestion of the use of thyroid extract for the relief of pain developing during inflammatory conditions existing in the pelvis, is not based upon reasoning or likely to be followed by results. Dysmenorrhea brought about by a lack of development of the genital organs or perhaps a condition of atrophy developing later in life, is very difficult to relieve. It is often a question in these cases where we know pregnancy cannot possibly occur, whether it is not justifiable to remove the organs from the body.

Dysmenorrhea may be brought about by the presence of a growth or growths within the walls of the uterus. A myoma or fibromyoma is frequently responsible for pain before or during menstruation. It is of a spasmodic, expulsive character, very like unto a labor pain. The tumor may press upon the obturator nerve and cause pain and even develop a crippled condition of the hip. The treatment of these cases is the removal of the growth by enucleation, or, if this be impossible, to remove the organ. Dysmenorrhea may be brought about by congestion of the uterus and pelvic organs from disturbances of circulation.

Hirst tells us that painful menstruation may depend upon a hyperesthetic condition of the endometrium. When the mucosa is infiltrated with blood and the surface epithelium is elevated by

extravasation, acute suffering is produced, aggravated by painful contractions of the myometrium and attendant reflex nervous disturbances. It may depend upon an ill-development of the uterine vessels, which are insufficient in their caliber to contain the excess of blood, or upon lack of development in the uterus itself, and a deficient capacity of the uterine cavity. It may be mechanical, especially if a narrow cervical canal is further obstructed by angulation in acute anteflexion, or if the cervical canal is obstructed by a polypus. It may be due to disturbances in the general nervous system without any local disorder co-existing, or it may be due to ovarian disease. Ovarian dysmenorrhea we observe very frequently. We have seen dozens of young women with sensitive and engorged ovaries who dread the onset of each menstrual period, knowing as they do, the suffering which they must endure at that time. In many of these the ovaries bear a number of cysts and on account of the condition of the ovarian tissue the Graffian vesicles cannot pass through the physiological process which should be carried out within by organs.

To illustrate this condition and to demonstrate the manner in which these cases can be operated upon without unsexing the individual but in giving absolute relief from the suffering experienced, I will relate a case upon which I operated the early part of June, 1904.

Miss H., 24 years of age, a brilliant vocalist with a register of three octaves, had been unable to use her voice with any satisfaction for a long period on account of the pain developed in the ovarian region when attacking the high notes. June 7, 1904, under ether anesthesia I cureted the endometrium, removing a quantity of congested tissue from the cavity of the uterus. I then made an abdominal incision in the median line and found both ovaries hyperemic and distended. Upon the left side I opened three good-sized cysts, and upon the right side two medium-sized cysts. The Graffian follicles in each ovary were distended. I enucleated these with a sharp spoon curet and scraped the walls of the cysts in order to destroy the germinal membrane. I then closed these openings with catgut sutures and used the same material to close the opening in the abdominal wall.

The patient made an uninterrupted and rapid convalescence, and has not had the slightest amount of pain in the ovarian region, and no pain during two menstruations which she has passed through since the operation. Very many gynecological surgeons, perhaps, would have removed both ovaries under these conditions,

and the result would have been the unsexing of the patient and probably the loss of her voice, especially in the upper register. I have heard her sing, and I am certain that the voice has not been impaired in the slightest degree. Two physicians present during the operation, when they saw the condition of the organs in the pelvis, expressed the opinion that no relief would follow the method unless I performed the radical operation and removed the appendages completely.

Resection of the ovary is followed by such successful results that we are not justified in removing the organs unless the complications present give no opportunity to perform the conservative operation. In cases of distension of the Fallopian tube by blood or pus, we should evacuate the fluid, stretch the lumen of the tube to overcome the tendency to leave a stricture, and in those cases where it is impossible to carry out this treatment we may transplant the ovary into the portion of the tube where it enters the uterus. We have sufficient evidence to-day that pregnancy does occur under these conditions and the sexual life of the patient is saved by this procedure.

There is another class of cases in which there has prevailed at some time of the individual's life severe attacks of pelvic peritonitis or cellulitis, leaving as a sequel fixation of the organs within the pelvic basin and developing severe pain and discomfort before and during menstruation. These adhesions can be freed either by incision made through the upper portion of the vagina or preferably by an abdominal section. A displaced uterus, especially one drawn to one side, can be more easily and more certainly remedied by section through the abdominal parietes than through the vaginal route.

There is another class of cases which give us great anxiety, and which we fail to relieve by conservative treatment. I refer to those who have displaced ovaries. The use of electricity as suggested by Massey, what he terms his vagino-abdominal treatment, appears to be of no service, in my experience, and very many of these are compelled subsequently to submit to removal of the dislocated organs in order to obtain relief from their sufferings. I have found that an abdominal supporter, properly made and applied, will overcome much of the pain endured at the time of menstruation.

Lastly, I will speak of that class of cases where the dysmenorrhea is due to a general systemic neuralgic condition. In these cases, at times, relief is secured by the use of the various forms of

electricity. In some individuals the static, in other the galvanic, form will ease the suffering. It is doubtful in many of the cases whether removal of the appendages would accomplish anything more than bring about premature change of life, while the patient remains just as nervous as before she was operated upon. I constantly see these cases where they have naturally passed through the menopause, and their condition has not improved in the slightest degree. Many of these women spend much of their time in bed or reclining upon their bedroom couch.

Finally, this paper has been written rather to develop discussion than to bring before the profession any new operative methods or technic. I shall feel amply repaid for my labor if I save even one young virgin from being unsexed by a radical operation, where a conservative one would have availed in giving her relief.

DISCUSSION.

Dr. H. W. Longyear, Detroit.—To one or two points only do I desire to speak in relation to Dr. Sellman's paper. Very few of us would take issue with the latter part of it, wherein he discusses the treatment of dysmenorrhea due to organic disease, associated with disease of the ovaries, adhesions, and the like. I think we all agree with him as to the measures to be adopted in such conditions. We are all agreed, too, that conservative treatment is right when these lesions occur in young women. When we can operate in such patients so as to save an ovary or part of an ovary, we should do so. In many instances this can be done with safety. Sometimes we may err in so doing and may have to operate again, but in the majority of cases we can conserve the tissues with perfect safety and with the result of maintaining the woman's natural menstrual life. But it does seem to me that the trend of the paper in regard to operative interference in cases of dysmenorrhea in young virgins is too radical, and I wish to say one or two words bearing on that point.

It seems to me we should have something more positive in the way of the degree of dysmenorrhea that exists and upon which we should depend for operative procedures. Many young girls suffer from pain for an hour or two, but as soon as the flow is established the pain ceases. Would the essayist operate on such cases? A little medicine will perhaps stop the pain, but if it does not and it continues, it produces no pathological results. These conditions sometimes continue for years; then the women marry, have children, and their trouble ceases. The essayist did not differentiate in regard to that point.

I would enter a protest, most assuredly, against operating upon

those cases of dysmenorrhea in young persons that are of very short duration. I do not think we should subject any unmarried woman to an operation for painful menstruation if we can safely avoid it. I do not believe that a dysmenorrhea which lasts for a few hours at the onset of the menstrual flow produces pathological results. The minor cases of painful menstruation of short duration do not need operation.

Dr. Herman E. Hayd, Buffalo.—The importance of this subject really demands a very general discussion, because it involves one of the most important topics that can engage our attention—namely, painful menstruation in unmarried women. I feel that the essayist in his paper was altogether too operative, if I may use that expression, and the means he employs I cannot help but take exception to. I realize how unwise it would be to permit a young woman to suffer indefinitely from painful menstruation without subjecting her to an examination. I realize, moreover, that even under the most painstaking examination of the most distressed patients we not infrequently fail to find evidences of pathology which explain the symptoms. I, myself, read a paper on this subject some time ago in which I stated that retrodeviation of the uterus was responsible for much of the dysmenorrhea in unmarried women. The present essayist has not alluded to that phase of the subject. If upon examination we find a retroflexed uterus; if we find a prolapsed ovary; if we find a tender, sensitive tube, then there is a rational basis to work upon; but simply because a woman has a small os it does not follow that she is going to be the subject of dysmenorrhea, because, in all probability, many of these cases are simply due to an impoverished condition of the whole system. They are simply functional troubles and must be met in that way. If, however, we have an obstructive dysmenorrhea, where there is a pin-hole os (and usually these cases are associated with a congenital atrophic condition of the uterus, a small undeveloped uterus), probably we can institute some operative measures. The intervention which has been most successful in my hands has been dilatation and curettage and the wearing of a stem pessary. There is no question in my mind that a small stem pessary, if it be watched, particularly those stems that have the slot in the side, will not produce the disturbance and anxiety which we found associated with the wearing of a stiff stem bar.

What the essayist gains by the use of such an instrument as he has exhibited, I cannot understand. I cannot imagine what can be accomplished by this screwdriver which he has shown that cannot be accomplished by simple dilatation. Unfortunately, sometimes two or three months after dilatation the canal recontracts, and the suffering is about as great as before. On the other hand, if a stem pessary is adjusted and the patient wears it a few weeks or months, it is possible thus to keep up continuous dilatation so that some good will result.

So far as the case reported by the essayist is concerned, I cannot

believe the woman was necessarily cured by his operation. I feel permitted to say this frankly, because Dr. Sellman and I are the best of friends. I believe the woman would have been cured by Christian science; I believe she would have been cured by occupation or by a lover, if she had one to visit her, who would entertain and amuse her.

Dr. Sellman.—She did have one.

Dr. Hayd.—I mean this in a moral sense, that if she had had somebody who would be a companion to her and give her a certain amount of relaxation and pleasure by means of contact and conversation, she would have been cured. I do not believe these little ovarian cysts cause any trouble whatever. That has been my experience. Most of these patients have tender ovaries; the sexual appetite is unsatisfied, and usually marriage cures a number of them. I do not mean that in a gross sense, but in the sense of functionating and carrying on the duties of maternity. The more you operate on many of them for painful menstruation, the more trouble you give them.

Dr. William H. Humiston, Cleveland.—The essayist has brought before us a very interesting subject. Dysmenorrhea is a common disturbance, and yet I have not been able in my experience to find a case in which there was painful menstruation unaccompanied by an inflammatory condition of the mucosa. I have seen a narrow os, with conical cervix, and a degree of anteflexion, and the patient menstruating without the least sign of distress; but whenever to this condition is added an inflammatory condition to the mucosa, that moment painful menstruation begins. When I have a condition of this kind to treat I thoroughly dilate the uterine canal, curet the uterus and have the patient wear an Etheridge drain pessary for several weeks. If there is no accompanying disease of the appendages, the cure will be decided and complete. But even in such cases occasionally one may have a failure because of his inability to recognize one condition of the ovary, an ovary which is smaller than the normal,—the cirrhotic ovary,—which is hard to detect unless an examination is made under an anesthetic. To relieve this condition nothing short of removal of these shriveled, corrugated, undersized ovaries will suffice. I wrote in detail on the cirrhotic ovary several years ago. Why remove, as the essayist did, a dislocated ovary if it is otherwise normal? It is perfectly easy to remedy it by stitching the ovarian ligament to the cornu of the uterus.

Dr. Dorsett.—Do you resect them?

Dr. Humiston.—Yes, where there is cystic degeneration of a portion of the ovary.

I wish the essayist would go a little further into the subject of curing retroflexion of the uterus by the method he mentioned, and tell us how this reaming out process will restore, or replace and keep in place a retroflexed uterus. I am very much interested

in that part of the paper, and would like to have Dr. Sellman further describe and explain to us the process by which the uterus is brought forward and retained in position by the reaming out of the thickened tissue that he described.

Dr. D. Tod Gilliam, Columbus.—One phase of dysmenorrhea has not been touched on either in the paper or in the discussion, which, I think, is the most important aspect of it. I refer to the undeveloped condition of the uterus. Various scientific men have put the tests to dysmenorrhea in every phase and form, and these researches have led to the conclusion that it is not a superficial condition and is not so simple in its pathology as has been believed. It is not the result of stenosis of the internal os or of any of the orifices of exit; it is not as a rule produced by the condition of the uterine mucosa, but is largely due, in most instances, to the undeveloped, unripe condition, or unyielding character of the uterine tissues. In these cases we have an undeveloped uterus, or a uterus which presents the characters of such, and we find the tissues are dense, just like unripe fruit.

One of the functions of the uterus is to throw off its epithelial lining at stated intervals. In the normal physiological state the epithelium falls off as easily and painlessly as the hair falls from the head. This is because it is ripe and ready to fall. In falling it opens up the engorged vessels of the uterine mucosa and by bloodletting relieves the pressure and congestion of the genital area. Thus, in the tenacity of the epithelium, we have one cause of dysmenorrhea. Again, in some of these unripe uteri the blood-vessels are imperfectly developed, are inadequate, and become over-gorged at the menstrual molimen. This is a cause of distress. Usually associated with these, the density of the tissues prevents that erectile distention of the uterus so necessary to the fluxions of blood, and this gives rise to pressure and distress. Thus we see that most of the causes of dysmenorrhea are located in the substance or body of the uterus,—that they are intramural and due to the unripe condition of the organ. It is seldom due to stenosis of the internal os, for in the acme of the dysmenorrheal pain the sound will usually pass without difficulty and its withdrawal is not followed by a gush of blood, as it would be if the pain were due to pent-up fluids. I have frequently found women with very sharp flexures of the uterus without dysmenorrhea, and, on the other hand, have found the canal patulous and straight with it.

In some instances we find an exquisitely sensitive internal os. This constitutes undoubtedly one of the causes of dysmenorrhea, and it is this class of cases that gives us the most pleasing results of dilatation; not so much from the opening of the canal as in obtunding the sensibility of the sphincter, just as we accomplish the same purpose in supersensitiveness of the external genitals in the condition known as vaginismus and in the allied condition of the sphincter ani. Inflammation per se has little to do with dysmenorrhea, for we find thousands of cases of endometritis or

metritis without dysmenorrhea. Inflammation of the endometrium dilates the canal and cannot therefore be a cause of mechanical obstruction. Dilatation and curettage of the uterus is beneficial in these cases only in so far as they tend to obtund the nerves, and are lasting in proportion to the alterative effects they produce on the uterine structure. A general hygienic régime is always indicated.

As regards Dr. Sellman's instrument, I would be afraid of it on theoretical grounds, and yet I would not condemn it on these grounds, for we all have learned that actual experience is the only determinate test. We may speculate and say this instrument won't do, and this thing is unscientific and unmechanical, and yet we may be utterly at fault. The inventor informs us that it is efficient and that it does the work; now, if this experience is backed up by a sufficient number and variety of successful cases, that should put a stop to all cavil. I can see how changes in the canal effected by it might be followed by relief, just as in cutting away the terminal bulbs of the supersensitive hymen is followed by relief, but I should be afraid of the after effects. I should be afraid of stenosis following the use of this instrument. I have observed stenosis follow different operations on the cervix and cervical canal, and am always afraid to leave the cervical stump or the cervical canal without its mucosa.

Some years ago electricity was much used in these cases, and I have used it myself and it has been followed, not only by stenosis, but by atresia of the canal and in one case I had to operate for complete atresia. Again, many of us have had experience in making the funnel-shaped amputation of the cervix in which a stenosis followed. The old-fashioned way of cutting off the cervix square has been followed time and again with stenosis when the raw surfaces were not covered with mucosa. I would, therefore, on theoretical grounds, be a little afraid of using such an instrument unless backed up by a very considerable experience or logic that does not suggest itself to me now. I will not condemn it, for, as I said before, we cannot gainsay facts and we have not learned from the essayist the after effects of its use. He may be able to show no unpleasant sequelæ and also explain to us why we are not liable to get stenosis after the use of such an instrument. The paper was an admirable exposition of the conditions existing in and subtending dysmenorrhea, and personally, I am very grateful to Dr. Sellman for his paper.

Dr. John Young Brown, St. Louis.—I listened with a great deal of interest to the paper read by Dr. Sellman, and there are many things in it which I do not think ought to be allowed to pass unchallenged. If I understood the paper correctly, the author dealt with the operative treatment of painful menstruation in young virgins. My experience in dealing with conditions of this kind has been that unless there is a palpable pathological condition present, it is better to leave these cases alone. Like Dr.

Hayd, I would oppose the indiscriminate treatment of conditions of this kind.

In looking up the etiology of pelvic disease some time ago, I found that the majority of cases which come to operation are those of gonorrheal infection, those of puerperal infection, and those cases that come as the result of infection from minor office gynecological procedures. My own experience corresponds with this record. Early in the history of this association, that brilliant genius and Fellow, Dr. Joseph Price, read a paper in which he discussed minor gynecological procedures in the relationship to major gynecological surgery. That paper made a most profound impression upon me. I do not feel that young women who suffer from painful menstruation, should be subjected indiscriminately to operative treatment or to vaginal examinations. I quite agree with Dr. Hayd, that a large majority of the cases would benefit far more by regulation of diet, care of the bowels, and out-door exercise than by the so-called conservative procedures. The protest I want to make is against the office treatment of these cases, and especially can we not take a virgin into our office, dilate her cervix, and use a corkscrew curet for dysmenorrhea, without doing damage. I do not believe that this method of treatment should be used unless we have some definite pathological condition to justify operative work, and then the work should be carefully done in the operating room. The mere fact of a young woman having painful menstruation does not justify surgical intervention. I believe that a large number of these women, if they took boxing lessons and were put on horseback, would get well. They should not be subjected to the dangers incident to office operations.

Another point made in the paper was with reference to the unsexing of women. It is an exceeding rarity for men engaged in legitimate operative work to do an operation of this character. Operations are rarely undertaken in this day and time without ample evidence for so doing, and that evidence is so palpable at the operating table that anyone may see it. We do not see as many gynecological ovaries removed as formerly; men operate now for pathological conditions, and those conditions are generally so palpable that he who runs may read. I do not think the term "unsexing" ought to be used, as it is misleading, and it is not just to the gynecology of to-day.

Dr. William J. Asdale, Pittsburg.—I wish to make a criticism in regard to the instrument that has been exhibited and recommended for use. If I understood the essayist correctly, he stated that this instrument was a selective one, and that it would not cut normal tissue. I cannot understand that.

Dr. L. H. Dunning, Indianapolis.—I do not wish to occupy much time in discussing this subject, though it is an exceedingly important one. I will say, that we ought not to approach any case of dysmenorrhea without studying the surroundings most carefully. We ought to have a most complete and thorough history

of the case, in order to determine the character of the lesion that is present before we undertake the treatment of the case.

I have been surprised in studying the collected histories of some two thousand cases to find that in about fifteen per cent. of them there was painful menstruation at the beginning of the menses. This would go to disprove one statement made by the essayist, who thinks that nearly all of the cases are due to inflammation, and the statement of another speaker to the effect that most all of the cases are due to gonorrheal inflammation, or some kindred infection. I think, in the majority of cases in which dysmenorrhea begins with menstruation, we will find some errors in the development of the organ, or errors in the development of the nervous system, which will lead to a painful condition of menstruation. I think every case should be studied carefully upon its merits. Some will be found to be due to nervous conditions, others to hyperemia of the ovaries, and still others to venous congestion of the pelvic organs, including the uterus and the ovaries. Obviously, all these are not cases demanding operative procedure. I think a large number of them are dependent upon errors in development, that the majority of them do not call for operative procedures, and will not be benefited in any way short of removal of the tubes and ovaries. However, these measures are rarely called for in such cases.

As regards obstructive dysmenorrhea, in the majority of instances we will find it is due either to an error of development or to anteflexion. Occasionally we do encounter flexion of the uterus following confinement in organs that are large, and in these instances it is entirely due to inflammatory troubles, cystic disease of the anterior wall of the uterus. It is not due in the majority of instances to neoplasm, but it will be found to be due to flexion, sometimes inflammation, but rarely the latter. And I rise more particularly to speak of the method of relieving dysmenorrhea due to anteflexion, which I have found very efficient and can recommend. It is the operation of Dudley for anteflexion of the uterus associated with painful menstruation or sterility. I have done this operation forty or fifty times with almost uniformly good results. It is simple in its technic, and exceedingly efficient when the directions given by E. C. Dudley are followed. We should not do it on the under-sized uterus, but on a uterus which is well developed. The advantage of this operation is that in the vast majority of cases it affords immediate relief. It is frequently followed in married women by impregnation, and it does away with the constant treatment by dilators and by curetment, as well as by the various other means, the constant use of pessaries, and the like. No doubt most of you are acquainted with the technic of this operation, so I will not speak of it.

I wish to say a word or two regarding conservative operations for cysts of the ovary. I think it is a mistake to curet the cavity of the cyst. Small cysts may be punctured and let alone. The larger cysts can be treated very much better and with less danger

of doing injury to the remaining healthy structure, by stripping out the lining membrane of these cysts rather than by cureting them. We are liable to do damage to healthy structures if we undertake the curetment of the cavities of these cysts.

Dr. Sellman (closing the discussion).—The object of my paper has been accomplished; it has brought out a most interesting discussion. There has been some criticism which will be of benefit to me, but, at the same time, some of the criticisms are due to the indifference of examination of my instrument.

In the first place, I would say that in this instrument the knives are not straight down, but when they are introduced the instrument cuts gristly tissue out, just like sharpening a lead pencil, and when it reaches normal mucous membrane you can turn it around, and it will not make any impression at all. I presented this instrument ten years ago before the gynecological section of the American Medical Association, and I have used it constantly since that time. My students, who have graduated under me at the college, have made use of these reamers, and I have never heard of a single case of injury or of inflammation following their use. That is the best of evidence.

Dr. Hall.—Have you ever seen or heard of stricture following the use of these instruments?

Dr. Sellman.—I mentioned in my paper that in not a single instance have I observed stricture or any cicatrization result, as the instrument will only cut into dense gristly tissue. With reference to the remarks of Dr. Longyear, who said that he would only operate in cases of organic disease of the ovary and pelvic disease, there is a good deal of reason in that, and if these patients only suffered a few hours, I would not advise this method. But the object of my paper was to recommend a plan for relieving these suffering women, for preventing a suffering which comes on about thirteen times a year. If anyone of us had to endure the pain even six times a year that some of these women suffer, I am sure we would seek some means of relief. It is a curse upon womankind to be subjected to this periodical pain. They endure it too well, and they try to guard against giving evidence of it to the male population. They consider that it is one of the essentials of their sex. If it is, it is a curse, and I am thankful I am not a woman.

In regard to the use of drugs for the relief of dysmenorrhea, and it was said it could be relieved by marriage in many instances, I think Dr. Longyear is a friend of Roosevelt. He believes in keeping up the population of this country by marriage and the results of it, so that Dr. Longyear treats his cases by means of drugs, and Dr. Hayd treats them until they find some men who love them or want to marry them. That is radical treatment. (Laughter.)

Dr. Hayd always speaks forcibly, and he thinks the treatment I advocated in my paper was altogether too radical. I wish to

say for his benefit that I do not use this instrument in all cases; I use it in a certain class of cases. I certainly would not use it in a case where the dysmenorrhea was brought about by an inflammatory condition. It is only in those cases in which a gristly condition exists that I use the instrument.

Retroversion or retrodeviation of the uterus is responsible undoubtedly for many cases of dysmenorrhea, and in these cases of retro- or antedisplacement I am asked, "How is it possible that such a displacement can be corrected by the removal of this tissue?" (Here the speaker went to the blackboard and illustrated his further remarks by drawing.) In a case of anteflexion with the condition of thickening of the tissue as indicated, this tissue draws the uterus over and prevents it from assuming its normal position. The same is true with regard to retrodisplacement. In order to afford relief, we cut away the string on the bow, as it were, and the uterus can be elevated. It does not jump up of its own accord. Do not misunderstand me. You can, by manual manipulation, or by means of a probe, straighten the uterus and it will remain so. A certain amount of distention of the bladder will keep it anteflexed, but by introducing a tampon in the posterior vaginal cul-de-sac you can keep it in place. The removal of this string on the bow allows you to replace the uterus.

In regard to my instrument, it has been characterized as a screwdriver. The gentleman who said that is evidently not a carpenter. If he were he would have called it a reamer. It is modeled after a reamer used by carpenters. One of the gentlemen who discussed my paper made a mistake when he said I removed the diseased ovary in the case I cited. I did not remove either one of the ovaries; I left them; I did not unsex the girl. She can have children.

Dr. Gilliam was not in the room when I read my paper, otherwise he would have noticed I gave him credit, and read from his book the very words that he gave in his discussion. I admire what he says in his textbook very much; I cited it in my paper, and so I agree with him completely. In regard to Dr. Gilliam's criticism of my instrument, that in the hands of those who are experienced it might do good, but that it required a skilled operator to use it, I will say, as I have previously said, that I have placed it in the hands of graduates and undergraduates, who have used it and have given me brilliant reports of success from its use.

In regard to cureting cysts, I will say that it is safer to dissect out the cyst wall than to curet. I accept Dr. Dunning's criticism in that regard, but in this particular case I found the tissue was considerably thickened, and I used a sharp curet in connection with the dissection. I dissected out a certain amount of tissue, and then sewed up the ovaries with catgut. I did not remove the ovaries, but opened the cyst and removed the germinal membrane. This can be done with a sharp curet or with a knife. It is safer with the knife, but not quite so rapid.

PSEUDOMEMBRANOUS MONOCYSTIC TUBERCULAR PERITONITIS.

By H. W. LONGYEAR, M.D.,
DETROIT.

The object of this monograph is to put on record a variety, or condition, of the tubercular peritonitis that seems to me to offer pathologic conditions not heretofore described, and which, because of such differences, apparently demands some method of surgical treatment quite different from that usually recommended in the other varieties of tubercular peritonitis. The condition will be designated as "pseudomembranous monocystic tubercular peritonitis," as this term describes the cases seen by me. The pseudomembrane was composed of fibrin, was white in color, about one-twentieth of an inch thick, unorganized, and covered the parietal and visceral peritoneal surfaces in such a manner as to form a sac of greater or less size, according to the length of time of progress of the disease, the same beginning at the bottom of the pelvis and extending upward, pushing the floating viscera higher and higher toward the diaphragm as the fluid in the sac increased in quantity. The intestines seemed to be held together by the pseudomembrane, but apparently were not in any other way adherent, so that when the sac was emptied they sank back into the depth of the abdomen and pelvis, the pseudomembrane being pushed before them. In stripping this fibrous exudate from the peritoneum, the underlying serous membrane was seen to be studded with miliary tubercles, and to all appearances resembled the tubercular peritoneum of the usual cases of the ascitic variety.

For the purpose of a comprehensive understanding of the pathology of the cases which I have to report, it will be necessary to take a brief glance at the literature of tubercular peritonitis in general. In looking over this subject, one is struck by the more or less confused status of the gross pathology, some observers treating the different conditions found in the abdomen as distinct varieties of the disease, while others divide it into progressive

stages, recognizing but the one disease with its various manifestations.

Three distinct varieties are noted by Wunderlich[1]—namely, (1) exudative; (2) fibro-adhesive; and (3) purulent. Another[2] designates the three varieties as: (1) tubercular ascites; (2) fibroplastic and tubercular peritonitis; and (3) adhesive tubercular peritonitis; while an entirely different view is taken by Abbe[3], who divides the disease into six stages, arranged according to the supposed progress of the disease. The second author quoted describes the conditions of the three varieties as follows:

(1) Tubercular ascites—miliary nodules covering peritoneal surfaces, adhesions few and slight, general abdominal dropsy, although the latter may be more or less circumscribed by adhesions of coils of intestine.

(2) The fibroplastic tubercular peritonitis—no serum found, peritoneal surface covered with a thick layer of gelatinous fibrin, cementing together adjacent organs and filling all interstices with fibrin.

(3) Adhesive tubercular peritonitis—primary exudate slight, endothelial cells proliferate and form new tissue, which undergoes cicatrization, causing extensive and firm adhesions, resulting often in obstruction of the bowels.

Mauclaire[4] finds three varieties,—the ascitic, the dry fibrous, and the ulcerative, which he subdivides as follows: the ascitic may be acute, subacute or chronic, the latter being either generalized or encysted. The dry fibrous may be merely dry or adhesive also. The ulcerative form may be either dry or suppurative, and in the latter case either generalized or encysted in one or several loculi.

Murphy[12] mentions four varieties,—namely, (1) disseminated, exudative, miliary, non-confluent, serous (ascitic) variety; (2) nodular, ulcerative, or perforative: the least frequent variety; (3) adhesive, fibroplastic, cystic, partition or obliteration variety; and (4) suppurative, circumscribed, or general mixed infection.

It will be noted that in none of these descriptions is it stated that the so-called fibroplastic, fibroadhesive, or dry fibrous is accompanied by a serous exudate; in fact, the designation of dry fibrous given by Mauclaire would indicate its absence in cases noted by him. In truth, a fibrinous exudate, covering all peritoneal surfaces, is mentioned by but one author of a number examined by me ("American Text-Book of Surgery") and it is there distinctly stated that no serum is found. Murphy, in his adhesive,

or fibroplastic variety, describes a different condition entirely. Furthermore, the encysted cases are classed by all of the authors quoted as belonging to the first variety,—that is, the exudative or ascitic. I call attention to these statements, as I shall show by the report of the cases which I will cite that these classifications do not cover them.

My own belief is—based perhaps on a comparatively limited number of cases of the various varieties of tubercular peritonitis, —that the so-called different varieties are simply different stages, one following the other with greater or less rapidity, the latter depending upon the powers of resistance of the individual, due perhaps to some peculiar condition of the blood, or other modifying factors in the human economy not known to us. In some, the disease may not pass beyond the first stage—that of exudation—while in others it passes quickly to the second, which I shall term pseudomembranous, and then, when this unorganized fibrinous exudate breaks down, we have the ulcerative or purulent stage.

It is conceded by all writers on this subject that the cases of the exudate variety—that is, the first stage—are the most amenable to operative treatment, and are also, fortunately, the most numerous; one observer (Wunderlich[5]) finding that sixty-eight per cent. were of this variety. Simple tapping will cure many of these. In some instances the fluid has been drained out by a canula and sterile air[6] injected into the peritoneal cavity, while in others sterile water[7] has been similarly used, and in both methods cures are recorded. Why these simple measures result in cures can only be a matter of speculation, as we do not know the *modus operandi.* Various theories, resulting from experiment and clinical observation, have been advanced, but none yet are proven. Robert T. Morris,[8] of New York, believes recovery is due to the production of toxalbumins by putrefactive bacteria, after operation. Arcangeli[9] thinks the serous exudate which follows the operation has an immunizing property, and so stops the further development of the bacilli.

Careful microscopic examinations of the affected peritoneum after each of four consecutive operations on a girl twenty years old were made by D'Urso,[10] who affirms that cure takes place by leucocytic invasion, organization of fresh connective tissue, vascular neoformation, and substitution of tuberculous tissue by inflammatory neoformations. The processes referred to in these theories certainly can have their fullest and most effective action

when the remedy can be applied to the bare, tubercle-studded peritoneum, and as surely have their least effect when applied to a thick, fibrinous exudate covering and protecting such a peritoneum, as presents in the conditions cited by the writer. Hence, the simple therapeutic measures which are sufficient to cure the cases of the ordinary ascitic variety are inadequate when applied to those of the pseudomembranous variety. Therefore, the prognosis is bad with the usual methods of treatment, and other more effective measures must be sought.

The following cases illustrate these observations on pathology and treatment.

CASE I.—Florence S., 14 years old, menstruated regularly for one year; health good, except for a feeling of lassitude; no emaciation, color good. Patient had not complained of anything, but her mother, being at that time in the hospital under my care, asked me to examine the child, as she did not look as well as usual. This led to the discovery of a small cystic tumor in the abdomen, midway between the navel and the pubis. Her temperature before the operation, which was at Harper Hospital on April 8, 1896, was 99.5°.

Operation: incision, removal of about two pints of thin, straw-colored fluid; lavage, first with normal salt solution, then with 1-10,000 bichloride solution and this followed by the further use of the salt solution; insertion of glass drainage tube and closure of wound with silkworm gut sutures. Pathologic examination of debris removed from the surface of the membrane in the pelvis showed tubercle bacilli present. Intestines or omentum were not seen during the operation. The sac was composed of a thick, fibrinous exudate, forming a pseudomembrane of about the thickness and color of buckskin, which closely adhered to the parietal peritoneum in front, then was reflected over the intestines and omentum, pushing them upward. The same exudate covered the uterus and appendages, which could be palpated by the finger and were not appreciably enlarged, so the removal of any of these parts was not considered necessary. Nothing coming from the drainage tube, it was removed on the fifth day and the wound allowed to close. The temperature remained about the same as previous to the operation until the fifteenth day, when it showed daily exacerbations, gradually increasing until it registered 103° on the twenty-sixth day, when the wound was opened, under anesthesia, and an abscess deep down in the pelvis discovered and drained through the original abdominal opening.

Recovery was slow. Drainage of pus and shreds of membrane was profuse for weeks. The patient left the hospital about three months after the primary operation with a small rubber tube still in the wound, as some pus continued to come from the deep parts of the fistulous tract. This tube was kept in for three months longer, with the daily use of a solution of tincture of iodine, one drachm to the pint. The purulent discharge then ceasing, it was removed.

I examined the patient two years ago, five years after the operation, when she appeared perfectly well. The old scar was retracted and a small fistula was found, which allowed the passage of a probe well down into the pelvis. She was menstruating regularly, and said the wound seemed to be kept open by the collection of a small quantity of blood which appeared occasionally during the menstrual epoch and had to be evacuated by pricking the small, blister-like protuberance at the middle of the scar. The fistula doubtless communicated with a Fallopian tube that was the seat of the primary infection, and probably should have been removed at the operation.

Thinking that probably the long-continued suppuration in this case was started by infection through the use of the drainage tube, I determined that my next case of that variety of tubercular peritonitis should not be drained. Although operating on a number of cases of the simple ascitic variety, another of this peculiar kind did not present itself until the year 1901, when I operated on two, both in a far advanced stage of the disease, and both succumbing eventually to exhaustion incident to suppuration, ulceration and perforation of the intestines, although treated differently—the first by non-drainage and the second by free drainage. Their histories are briefly as follows:

Case II.—Lena S., 17 years old, single, teacher, was brought to me by Dr. R. G. Dean, of New Hudson, Mich. She had been complaining of lack of appetite and weakness for several weeks before calling a physician, but had no pain and no discomfort until the abdomen commenced to enlarge, about two months before coming to the hospital. Patient was emaciated, abdomen distended by a fluctuating tumor reaching from the pubis to two inches above the navel; temperature 102.2°, pulse 112. Operation at Harper Hospital, April 26, 1901. Incision, drainage, lavage with normal salt solution, closure of wound with silkworm gut sutures. Appendages not removed, as they appeared of normal size, as felt through the exudate. The same buckskin-like pseu-

domembrane was present as in the previous case, but the sac was much larger, containing about eight pints of clear, straw-colored fluid. No tubal or other abscess present.

The pulse and temperature fell slightly after the operation, but remained much the same as before until her discharge, May 16, 1901, when the pulse was 118, temperature 100°. The wound healed well. The patient was removed to her home by her mother against my advice, as she was no better, and I desired to re-open the abdomen and drain. Her physician reported that about a month after her return she developed symptoms of stoppage of the bowel, which was relieved by the breaking of a large abscess through the scar, from which the fecal matter and pus escaped until she succumbed.

Case III.—Margaret N., 20 years of age, unmarried. Referred to me by Dr. R. L. Parkin, of Romeo, Mich. Her first symptoms were apparently trivial, were not noticed by the patient, and it was not until decided loss of flesh, fever, and abdominal distension began to become manifest that anything serious was apprehended. She had been confined to her bed five weeks when first seen by me, and had been treated for typhoid fever. At the time of the operation she was much emaciated, very anemic, and the abdomen was apparently distended to its fullest capacity by a fluctuating tumor, which was dull on percussion over the whole abdomen, except a small space in each hypochondrium and over the stomach. Temperature 102°, pulse 116. Operation at the Woman's Hospital, December 3, 1901. A large quantity of straw-colored fluid was evacuated, and with it a number of masses of jelly-like consistency. The pseudomembrane in this case was thick, quite firm in texture, and when pulled from the peritoneum, showed the rough surface characteristic of miliary tuberculosis. It formed a complete sac, which appeared to fill the entire abdominal cavity, extending posteriorly high up on either side to the liver and spleen and pushing the intestines upward to the farthest limits of the abdominal cavity. The intestines were not seen, being entirely covered by the membrane, but when the sac was empty the form of their convolutions could be seen as its wall was pushed down before them. The left Fallopian tube, being considerably enlarged, was removed. Microscopic section of this specimen by Dr. Hickey, of the Detroit Clinical Laboratory, indicated this as the point of primary infection. It contained no pus.

The cavity was flushed with a large quantity of salt solution and a glass drainage tube inserted. The temperature remained

below 100° for ten days, then began to rise slightly. At this time the fluid drawn from the drainage tube began to be purulent and contained particles of the membrane, indicating that it was breaking down. The patient left the hospital January 3, 1902, one month after the operation; temperature 100.6° and pulse 116; drainage tube still in and discharging much pus and shreds of membrane. I saw her again four weeks later at her home. Large masses of the pseudomembrane had been coming away; the discharge was very copious and had a fecal odor; temperature was 103° and pulse 120. The abdominal wound was entirely open, but drainage being apparently defective, I gave an anesthetic, opened the posterior culdesac and placed a large drainage tube through it into the vagina. Some pockets of pus were also opened in the pelvic cavity, and it was noted that the membrane had almost entirely disappeared, its place being taken by an apparently ulcerating surface. The febrile symptoms abated considerably after this, but the end was only slightly retarded, as she died of exhaustion three weeks later.

These cases, as far as so limited a number can do so, teach the necessity of early diagnosis and early operative treatment. The first one was saved simply because the disease was discovered in a less advanced stage than in the other two, thus allowing the use of the balance of vital force so necessary to stand the long drain incident to recovery from this form of the disease. Then, again, the disease was probably arrested before cheesy degeneration had occurred to destroy the integrity of the intestinal walls. The pseudomembrane seems to be placed by nature for the purpose of protecting the rapidly disintegrating peritoneal membrane and the underlying tissues. The fact that this thick pseudomembrane covers up, and thus protects, the tuberculous membrane from the action of air and light, or whatever agent it may be that results in the cure of ordinary cases of tubercular peritonitis, is probably the explanation of the failure of operative procedure in producing the immediate beneficial effects that obtain in the non-membranous stage of the disease. This thick, fibrinous exudate, causing by its presence totally different conditions from those existing in cases where it is absent, would suggest also different methods of treatment at this stage of the disease. Believing as I do that the presence of the membrane is the obstacle which prevents the cure, any therapeutic measures should be first applied to accomplish its removal. As this probably cannot be managed without drainage, drainage should be the first requisite, and such other

measures added as will facilitate the rapid disintegration, disinfection and removal of the pseudomembrane, as well as the copious seropurulent discharge which supervenes. A somewhat similar fibrinous exudate is found in some cases of pyothorax, and this is usually scraped away when operated upon, and the pleural cavity drained and washed for a long time, resulting usually in complete cure. While the conditions are different and a curettage of the peritoneal cavity a practical impossibility, still it would seem that the same general plan of treatment should be observed. The great mass of fibrinous exudate covering the diseased peritoneum will eventually break down, can never become absorbed, and so should be removed.

RECAPITULATION.

Definition.—Pseudomembranous monocystic tubercular peritonitis is that form of tubercular peritonitis which is characterized by the formation of a thick, white, fibrinous pseudomembrane on all of the tubercular peritoneum, it being found covering the parietal peritoneum and cementing together and covering the intestinal coils in such a manner as to form a sac, of greater or less capacity, according to the progress of the disease, which contains straw-colored fluid with occasionally jelly-like masses and shreds floating therein.

Treatment.—Abdominal section, evacuation of fluid, and thorough washing out of all shreds and gelatinous masses with normal salt solution; thorough drainage by glass or rubber tube, both abdominal and vaginal, when indicated. This is to be followed by after treatment, consisting of frequent lavage with a weak aqueous solution of iodine (Tr. iod. ʒi, water oi) until the pseudomembrane is disintegrated and the purulent discharge that follows has ceased. Internally, the rational treatment of tuberculosis, consisting of the use of creosote, cod-liver oil, and the like, together with a supporting diet and suitable hygienic surroundings.

Prognosis.—The prognosis is unfavorable, from the very nature of the disease, although a few may recover if not too far advanced, after months of constant drainage and careful nursing.

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DISCUSSION.

Dr. Rufus B. Hall, Cincinnati.—I differ from some of the quoted writers in regard to the several varieties of tubercular peritonitis. I am of the opinion that we find tubercular peritonitis in different stages of development. In the short time allotted to me, I cannot take up all the important phases of this very interesting subject, and will only speak of a few of them.

First, in dealing with the operative treatment of tubercular peritonitis, our ultimate success depends largely upon the condition present and upon the variety of the disease for which we operate; also the general condition of the patient, the previous history, as in many of these patients the prostration is so great that they are not in a condition to withstand trauma of any kind. My experience in dealing with that variety in which there is no accumulation of fluid has not been very satisfactory from a surgical standpoint. I have time and again operated where I supposed I had something else, but found I had tuberculosis to deal with. The dry variety in particular has been disappointing from an operative standpoint, as I stated once before at a meeting of this association. The greatest relief is to be afforded in those cases of the variety indicated by the essayist,—the accumulation of cysts,—from the operation of letting out the fluid and, above everything else, draining. Every one of them should be drained, in my experience, largely for the reasons given by the essayist. In those patients who are not drained, one may have to do what the essayist did in his second case. It opened itself. Because the third case died, if I understood him correctly, it does not signify that he did not do the best that could be done for the patient. The want of success does not indicate that she should not have been

afforded a chance to get well by operation. She may have had general tuberculosis in addition to tubercular peritonitis. I have lost patients after the wound had reopened, that is, six weeks to four months, or longer, after the primary operation, when the wound had reopened and remained so for two or three months before the patient died, all the tissues suppurating underneath the integument. One patient died of general tuberculosis whose case was similar in its history to the third case reported by the essayist.

I expect to be criticized by the men who are to follow me in the discussion when I say that all of these cases of fluid in the abdomen should be drained, whether they contain serum or pus. I am convinced from surgical experience that I get better results when I drain them all. In all cases, whether there is fluid or serum, a pseudomembrane is formed, and in all pus cases there is a walled-off sac to deal with, and without drainage such cases do not do well. To say that they all recover after drainage is saying too much, but a large majority of them primarily recover.

In regard to locating the nidus of infection in these cases, the essayist did not try to do so in his first case, yet his patient made an excellent recovery. The question of whether one should or should not try to find the nidus of infection is one to be settled by the operator at the time of the operation. If we find on one side of the uterus a large mass underneath the pseudomembrane, we should open up and remove the infected tube. That would be the conservative and correct thing to do; but some of these patients are so desperately ill that we must do as little surgery as possible. I have time and again made section in a desperate condition, put in a drain, and in six months or a year or two later removed one or two infected tubes, and cured my patient; whereas, if I had prolonged the operation when she was in a feeble condition, or had inflicted great trauma, the patient would not have rallied.

I have just now a patient that is convalescing which excellently illustrates this point. A comely, accomplished young woman, the daughter of one of Cincinnati's wealthy and influential citizens, graduated from high school two years ago last July. When I was asked to see her, she had not been well for two or three months. For a few days she had fever and had a tumor in the abdomen as large as a cocoanut, apparently above the pubis. She had high temperature with every indication of pus, and lost flesh rapidly. Much of her trouble was attributed to hard mental work in school. We resorted to vaginal section to let out the pus in the hope of tiding her over. About a pint of characteristic tubercular (not gonorrheal) pus escaped. There was every indication that the girl never had had gonorrhea. Within three weeks thereafter a distinct abscess developed on the opposite side, and through the same incision under anesthesia I opened it up, after she had had fever for five days, and five or six ounces of pus was evacuated. The girl rapidly improved; within two months she gained twenty or thirty pounds, nearly recovering her former weight, which was

135 pounds. She spent the following winter in Florida, and the next in the Rockies, but was at home in the intervals. A sinus always remained and was discharging a little pus. She was perfectly well with the exception of a tender point in the abdomen. I opened her abdomen, and found that this sinus extended up the right side; the Fallopian tube and the ovary were involved. There was a capsule to the ovary. One could introduce the thumb into the Fallopian tube. I removed the ovary and tube. In the opposite tube there was a sinus behind the uterus communicating with it. I will make a blackboard diagram to represent the uterus, and show the position of the suppurating sac, with one sinus extending down into the vagina. The other tube was enlarged to the size of one's little finger, with a sinus running back of that into this (indicating). The ovary on this side was normal in size, but had a few normal cysts in it, and desiring to save this girl her menstrual function, I practised conservatism. I removed the first tube and ovary, cutting a piece out of the uterus, also the opposite tube, leaving one ovary and her uterus.

I had some other difficulty to contend with in this case. The intestines were agglutinated and so friable in places that one could pick out great bands as large as the rubber on an ordinary lead pencil. I could pick off tubercular masses. In liberating these from the sinus to get more of the tube away, I broke into the ileum; I could not bring the bowel up to the abdominal wound to make an artificial anus, and could not attach it so that it would not leak. I recognized I had a difficult task on hand. However, I did the best I could. I patched it with fine silk, and sewed over the top with catgut. I went to work with a little plan in my mind, as the whole pelvic cavity was raw and denuded. I first enlarged the opening in the vagina; then carried a strip of gauze out at this point (indicating), above through the vagina, and then I packed with gauze until I filled the pelvic cavity full. Let us suppose that this point (referring to diagram) represents the injured bowel; I covered above the injured bowel so that nature would wall off the gauze directly and a fecal fistula communicating with the vagina would result. Then, to prevent a movement of the bowels for four or five days, I made forcible dilatation of the anus, and she made a prompt and satisfactory recovery. Her condition improved rapidly; the next day she looked as though I had not done much to her. I removed part of the gauze on the third day, part on the fourth, and on the fifth the remainder. Liquid feces came through the vagina; I gave her a cathartic, and all the feces came through this opening for a week or so. Nothing was done except to give vaginal douches two or three times a day. We kept her on liquids as much as possible, and at the end of three weeks the sinus was closed, and the girl is symptomatically cured. This case illustrates the danger of infection of the tubes.

I believe we should open the abdomens of these patients and drain them, but if there is an infected tube we do not cure the patient unless we remove the infected tube. It is desirable, if pos-

sible, to discover the mode of infection, which I did in this particular case and removed the nidus of infection. It is surprising, when this is done, how many of these patients get well symptomatically. That they all get well symptomatically and remain so, I do not believe. Many of them remain well symptomatically for two or three years, while others develop tuberculosis in other parts of the body. A good many of them are well symptomatically so far as abdominal tuberculosis is concerned, but they acquire tuberculosis in other parts of the body. But this should not prevent us from doing our duty in these cases.

Dr. L. H. Dunning, Indianapolis.—I am very glad, indeed, that Dr. Hall related the history of this case, because it has been the belief of a great many that fecal fistulæ in tubercular cases will never heal. In one instance I, myself, observed a tubercular fecal fistula heal, and I am glad to know that Dr. Hall has observed another, so that we can oppose or contradict any future statement that a tubercular fecal fistula will never heal.

There are two or three questions which, it seems to me, we ought to try to settle in our minds in the treatment of encysted tuberculosis of the peritoneum, such as reported by Dr. Longyear. First, as to whether we ought to remove the Fallopian tubes in all instances? My belief is, we should. Dr. Hall thinks we may cure our patients if we do not institute too great a surgical procedure. I believe in all cases of encysted dropsy, where fluid accumulates in the pelvis, as described by him and Dr. Longyear, the primary infection is in the tube; that here is the focus of the disease, and the tube ought to be removed, or the fistula following, if one results, will persist indefinitely. I have found that it does not require much effort on our part to remove such a tube. Frequently we are not able in these instances to ligate as we are in other cases. In ligating the pedicle of tissue formed by pulling up the tube, in many instances the tissues are so friable that thread will cut through them when a ligature does no good. Fortunately, all we need to do in such cases, as a rule, is to use a pressure forceps upon the stump for a few minutes and cut it away. When ready to close the abdomen, remove the pressure forceps and no hemorrhage will result. This technic shortens the operation very much. We can deal with the stump by this method in one-fourth of the time it would take to ligate it.

In reference to drainage, I am in most hearty accord with both essayist and discusser in the statement that we ought to drain every case of this kind through the abdominal wall. We should not drain through the vagina if we can possibly drain them in the other direction. Should we in these cases attempt to break up adhesions? Our distinguished Fellow, Dr. Price, has insisted upon breaking up adhesions in all cases of tuberculosis of the intestines. My belief is that the pseudomembrane (which is adventitious membrane) thrown out is protective, is conservative on the part of nature, and that we ought not to attempt to separate ad-

hesions. The last point I will touch upon, and one which I think is worthy of our consideration, is as to whether we may not be justified in attempting to shorten convalescence in these cases by curetment of the fistulous tract if one persists. In three of my own patients I have cautiously cureted the sinuses and packed them with gauze to the bottom, and have met with splendid recoveries. In one instance there was wide invasion of the abdominal wall, as well as in the pelvis, and I, with a great deal of timidity, used the curet, but I did it carefully and packed, and healing of the fistula occurred within a short time. I am well aware that when there is prolapsed bowel that gets into the pelvis, we may do great damage by cureting, but I believe it is justified in most instances.

Dr. Herman E. Hayd, Buffalo.—This subject is not so easily disposed of as some would have us believe. Dr. Dunning and Dr. Hall seem to think that all that is necessary in a case of tubercular peritonitis is to open the abdomen, put in a drain, and the patient will get well. I do not quite accept that. I believe every one of these cases must be treated as though it were a law unto itself. Some of them need to be drained, others do not. Usually, cases with simple effusion, or of dropsy that is circumscribed, get well if one opens the abdomen and immediately closes it. One does not need to disengage bowel or disturb the adventitious membrane. Simply the entrance of air, or such little traumatism as results by manipulation, cures these cases. However, if we have a pathological condition, such as Dr. Hall has represented by his remarks, we must drain. We cannot do anything else in such cases as that. I do not believe, however, that all cases of tubercular peritonitis should be drained. My own experience does not justify that dictum.

Dr. Dunning.—I meant encysted dropsy.

Dr. Hayd.—I have operated on a number of such cases and they have recovered without drainage. It is not well to disturb the protective membrane which Dr. Longyear depicted, because the more you disturb it, the greater the danger of inflicting trauma, and Dr. Hall has shown by the report of his case how easily the bowel tears under these conditions. If we only knew where the site of infection was, there would not be as much difficulty in dealing with these cases. We are made to believe the mode of infection is only through the vagina and up the os through the uterus to the peritoneal cavity, but this is not correct. In many instances it is general and systemic. The infection is through the blood as we see in other inflammatory conditions, the result of bacteria other than the tubercle bacillus.

An interesting example illustrating this fact occurred a few weeks ago in a patient who came to my office. I asked him how much he weighed, and he replied, "A hundred and ninety-two pounds." He was twenty-eight years of age, and presented a

general picture of health. On closer inspection I noted that he was pale and had an appearance which suggested that he was not feeling well. After examining him I told him that he had tubercular peritonitis and dropsy. He did not know what that was, of course. I examined the testes and epididymis and found that the left testicle was atrophied, the cord thickened as was also the epididymis, and I made up my mind that this was a local infection from below, although he had a splendid history and lived an abstemious life. He was prepared for operation, and in a few days I opened his peritoneal cavity and found the peritoneum as thick as one's little finger; it was simply one continuous mass of tubercles, some the size of a grain of hemp, others as large as a small nut. It must be seven weeks since I operated, and he has made a good recovery. The dropsy has not returned, and he has gained twenty or thirty pounds of good flesh, which weight he lost in the fluid I removed from him. He is a well man, so far as I know. I did nothing to the testicle, but will wait until surgery is called for. This case was not drained, yet there were a great many adventitious membranes in the abdomen. I drained one pocket, and removed three or four quarts of fluid. The man's condition has not suggested that drainage was called for. I do not see any object in drainage. What is the object of drainage? Only to take care of such dangerous sequelæ as will result from imperfect operations, such as injured bowel and other viscera.

Dr. J. Henry Carstens, Detroit.—Dr. Hayd has called a halt in regard to drainage in all these cases of tubercular peritonitis. I am glad of it, so that I may not be called the only objector. I thought it was about time to call a halt in regard to drainage in all cases of tubercular peritonitis. Take the case reported by my friend, Dr. Longyear; it was only an example of ordinary, simple, encysted tubercular disease, and all that is necessary in such cases is to wash them out and then let them alone. You want to do something, and in doing so you spoil it. My friend, Dr. Hall, did the same thing. He was bound to do something. He was trying to loosen up adhesions and the result was serious complications. Many of these cases of tubercular peritonitis should be left to nature, giving her a chance. Somebody has said that all that is essential is to open the abdomen and let the sunlight in, though in doing so you may start phagocytosis or something else. Somebody used that expression once, and it is a good one. It is catching. But how can we leave sunlight in there forever? It is well enough to let in a little sunlight, but the abdomen should be closed soon and the patient let alone afterward.

When I have a case of tubercular appendicitis and operate on it and drain it, I have got trouble, because along the track of my drainage tube there will be tubercular deposits, and I may have a fistula existing for a long time. On the other hand, if I take out the appendix, and close the opening with silkworm gut suture *en masse* tightly, in order to keep the daylight in there, or to keep

the rest of it out, I have union without the formation of such a fistula. My friend, Dr. Longyear, would not take out this pseudo-membrane, and if he had not felt around and started up another infection, his patients would have recovered as I believe; at least, they nearly always do. The trouble is that many of us do too much, and we add to a tubercular infection the infection of the streptococcus or staphylococcus; we have suppuration, and on this account our patient is not likely to get well for months or years, and probably may die.

The whole thing resolves itself into this, What have you to deal with? Have you a tubercular infection, plain and simple? Yes. Very well. Close the abdomen, no matter what else you do. Wash out the abdomen and close the opening. If you have a mixed infection, then you must drain. What is the use of taking out a diseased tubercular pus tube? I take out a tubercular appendix because it might ulcerate and the contents of the intestine get into the peritoneal cavity. That is the reason I remove the appendix. But the contents of a tubercular pus tube is already in the peritoneal cavity, and I need not take it out. It does no harm to the other organs. If I take out the one, there is another on the other side which I must remove. We know that we can leave a big bunch of tubercles in the omentum and in the intestines around the tube as large as a fist, even filling up the pelvis, and binding down the uterus, and yet in six months, if we were to open the abdomen, we would be unable to find it. Yet some operators want to take out a little tubercular tube and say it is the nidus of the disease. Who of us know where the nidus is? Not one.

It is useless to take out anything except the appendix. If this were left it might ulcerate and cause infection of the bowels. If we drain, we are going to have a lot of trouble, particularly if the bowels are adherent and twisted in almost all directions. If the patient is well otherwise, nature will take care of it, and if the bowels have moved regularly we need not break up adhesions. I repeat, let the patients alone. Let us not forget the pathological condition we are dealing with. We should not keep the patient in bed in a house, but treat her as we would any other tubercular patient, by sending her out in the open air in the country, or putting her in a tent. When these patients are treated in this way, we will be surprised to see how nature takes care of the tubercle bacilli in the peritoneum.

Dr. D. Tod Gilliam, Columbus.—I shall not speak quite as emphatically as Dr. Carstens did on this subject, but, at the same time, I share in the view advanced by him, that we should not interfere too much in cases of tubercular peritonitis. I believe such cases as have been described would be better without operation, if we could diagnosticate them properly beforehand, on the same principle that the general surgeon, when he finds a psoas abscess docs not interfere with it. The gynecologist must learn that there

are some things that would better be let alone. When we can't kill a snake, it's better not to scotch him. But to preach hands off to the gynecologist, is like talking to the wind. I never knew one yet, who, if there is anything in the abdominal cavity of a pathological nature, did not go after it. If we do open the abdomen in the class of cases under consideration, the less we interfere with the structures, the better. I would say, do not even aspirate for fear of stirring up the infection, but if anything is done let it end with drawing off the fluids. In going farther than this, it makes little difference whether we drain or not, or do it one way or the other, bad results will follow, such as Dr. Carstens has described.

There are other forms of encysted tuberculosis—forms such as we usually encounter—in which we do not have bad results, and here it is necessary to open the cysts. I do not care even to wash out, but I would not drain, for in so doing we are liable to graft another form of infection on the tuberculosis and complicate without curing the case. Open the abdomen if you will, but close it quickly. I do not believe in breaking up adhesions and separating viscera in such a condition. They will adhere again, and in so doing are liable to form viscous and dangerous adhesions, resulting in obstruction of the bowels. Again, the tissues are often friable, and with the slightest touch a viscus, such as the intestine, may be opened, and an opening once made almost never heals; there is a permanent fistula followed sooner or later by death. I am now talking of the tubercular fistula which is notoriously non-reparative. As to removing the tubes in these cases, as advocated by some, it may not be practicable to do so. One may not be able to get at them without doing violence to the tissues overlying them, that is, you may have to tear an intestine. As to the route of infection, it is by no means necessary that it should come by the vagina. The majority of cases that I have found in young girls came by a different route, that is, from the blood, or the intestine, or some organ contiguous to the peritoneal cavity.

Many of the subjects of tuberculous peritonitis have never been exposed to infection from below—they are chaste and pure. In such we frequently find involvement of the tubes, but as we know, the bacilli may be wafted into the ostium abdominale by the current that sets in that direction from the peritoneal cavity. Fine particles of colored matter placed in the peritoneal cavity will be carried into the tubes on the tide of this gulf stream of the great serous cavity. It does not follow, then, that the tubes are the focus of infection and must necessarily be removed to insure a cure, though I am free to acknowledge that the tube is a locus from which it is difficult to dislodge the tubercle bacillus. I would say, take the tubes if you can without extra hazard, but do not despair if you are not able to do so! I remember a young woman who came to me about a year ago with every organ in the abdominal cavity literally studded with tubercles. I opened her abdomen, let out the fluid, but did not wash out the cavity, and put her

to bed, believing that she could not live. Her abdomen rapidly refilled, and her people took her home to die. Some months afterward she walked into the hospital in perfect health. I have now a case on hand, a bad one, upon whom I performed the same operation. In her case there was a reaccumulation of fluid, together with an exhaustive colliquative diarrhea. Some time since she was transferred to the medical department. Just before I came away I learned that she was getting better. My own feeling is that if pus does not form the patient always has a fighting chance, even though the tubes be not removed. Pus in tuberculosis I regard as the harbinger of death unless we can remove the pus-producing cause.

Dr. Rufus B. Hall, Cincinnati.—Dr. Carstens intimated in his remarks that I was doing too much surgery in these cases. If he will take the clinical history of the case I reported, and the reasons why the operation was made, he will see that there was no possibility of cure without removing the tube, and no possibility, in my opinion, of curing the sinus without removing it. It was necessary to detach the portion of intestine I injured, and I will not consent to the challenge that I was doing unnecessary surgery, unless it be admitted that the whole domain of peritoneal tuberculosis is unnecessary.

Dr. Longyear (closing the discussion).—The discussion has been interesting, but has covered a much larger field than I intended it should do. I simply introduced these cases as illustrating a rather unusual form of tubercular peritonitis, in order to get the views of the Fellows regarding the treatment of them, rather than the treatment of tubercular peritonitis in general, which really has been made the basis of most of the discussion. We differ a great deal about the removal of the focus or nidus of infection. Dr. Carstens spoke emphatically about that. He knows very well that he removes diseased tubes almost constantly when he opens the abdomen. Does he leave pathological tubes? Not at all. He may take out a tube without there being any tuberculosis of the peritoneum; he sends the specimen to the laboratory and the tube is found to be tubercular. He may remove a tubercular tube in which there are no macroscopic evidences of tuberculosis whatever. Why should we not, as well, remove it when the peritoneum is studded with tubercles? By doing so the rapid dissemination of bacilli from the open end of the tube is at once stopped, and recovery made more certain.

We must certainly differentiate in pathology if we are to succeed with our therapeutics. Take a case of simple tubercular peritonitis with a large cyst, the whole abdomen being full of dropsical fluid; I do not believe such a case needs to be drained. I agree with Dr. Hayd, in the plan of washing them out and sewing them up, believing they will get well. It is true, in many of these cases, there will be a re-formation of the fluid. I have seen that occur. Dr. Gilliam just spoke of a case in which dropsy had

occurred afterward, but the patient got well. I have had a similar experience recently. What do you drain? You drain the serum; there is nothing infectious about it, and you do not need to drain it. In these simple cases you have done all you can do when you open the abdomen, wash out the cavity and sew up the wound—removing at the same time the nidus of infection, if found, be it Fallopian tube or appendix.

Here is another case in which very different conditions exist; the whole peritoneum is studded with tubercles, as in the other variety, but is also covered with a thick fibrinous membrane. It is all protected from everything we do; we open it, drain it, sew it up, leaving it as we did before. We have taken out nothing but fluid. That is all. The question is, Shall you do anything else? Are you going to do any good by doing anything? I am not sure whether I am or not, but that is what I, and all of us, are trying to get at in all forms of disease which terminate fatally if left alone.

Dr. Carstens criticized me for not closing up the abdomen in this class of patients. I did this in the second case. I opened the patient's abdomen, washed out the cavity, and sewed up the wound, removing nothing, as he recommends. She went right on as before, and about six or eight weeks after that a large abscess formed; the bowels ulcerated through the fecal fistula, and the woman died of exhaustion. That is exactly what the third case did that I treated so differently, by free drainage. In the late cases cheesy degeneration forms in the peritoneum, under the membrane which covers it up, and when the membrane comes away the intestine is opened. These cases are different altogether from ordinary cases of tuberculosis, and I think from my own experience they are quite rare. I have talked with a good many surgeons in regard to this form of tuberculosis, among them Dr. Murphy, when he was preparing his paper read last year, describing these cases to him, and he informed me that he had never encountered one. Therefore, I feel reasonably certain that they are not at all common.

In regard to fecal fistula occurring in cases of tubercular peritonitis, I do not think the fistula will heal if you sew up the wound or if you put in a Murphy button. Dr. Hall did right in his case. If you sew such cases up or put in a Murphy button, there is no adhesive quality to the serous membrane, and it will ulcerate. The manner in which he treated his case is the only way to treat them. You must make an external opening somewhere. That is the difference. That is the kind of tubercular fistula that will heal, where you leave an external opening forming a fecal fistula. Nature will then have time to heal the diseased opening, and the parts will then close themselves, or can be closed. It will never heal if you sew the case up or put in a Murphy button, and the fecal opening will then occur inside the peritoneal cavity, with, of course, fatal results.

Dr. Dunning spoke of using pressure forceps in amputating the tube. I was interested in the description of that method, but have never tried it. I remember one case where I enucleated the tube and ovary in which there was no bleeding whatever. Everything was friable, and I simply enucleated the whole mass. The patient recovered perfectly without any ligation, and is perfectly well to-day—two years after the operation. But in other cases I have had to ligate bloodvessels separately. If the tube and ovary can be enucleated so as to separate the tissues very close to them, you can do it without a ligature. But this cannot always be done. I would hardly dare put on a pressure forceps and take it off after a few minutes, unless it was something after the manner of the angiotribe. I do not believe in breaking up adhesions to the bowels in cases of tubercular peritonitis. It is extremely hazardous, and one will get into a lot of trouble if he tries it.

Dr. Gilliam thinks it would be better if we did not operate at all in these cases, if we only knew beforehand the nature of them. Perhaps he is right in regard to the far advanced cases of this disease, although we must do something when these patients come to us with the abdomen full of serum, as they can hardly breathe, and we must remove it with aspirator in some instances. But we cannot tell whether they are of the pseudomembranous variety or not. I know of no way to determine it. In fact we cannot do it with certainty.

CHRONIC ADHESIVE PERITONEAL SCLEROSIS.

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Among the rarer abnormal conditions found within the abdomen is one peculiar and interesting; possibly, too, more frequent in occurrence than has heretofore been suspected. Chronic adhesive peritoneal sclerosis is progressive, yet is characterized by an absence of active symptoms, including ascites. In the early stages the peritoneum is rigid and contracted; later the connective tissue becomes excessively hypertrophied, with adhesions between the involved peritoneum and all viscera with which it comes in contact. As soon as these adhesions interfere with the functions of any organ, symptoms referable to such interference supervene. When the involvement prevents some important organ from performing its necessary functions death ensues. In the following illustrative case only a circumscribed portion of the peritoneum—the pelvic—was affected.

History.—Mrs. M., aged 36 years, was a large, well-formed woman of good health until her recent confinement. She first menstruated at seventeen years, her periods being regular in time and quantity, and accomplished without difficulty. She did not use alcoholic drinks, nor was even a trace of syphilis or gonorrhea to be found in herself or husband. When 26 years of age she became a mother. Her first-born died at seventeen months, of diphtheria. Within the next seven years she gave birth to two other children, who were alive and well at last reports. In all three confinements labor was easy and convalescence normal. Her fourth delivery, though not instrumental, was somewhat more severe than the others, and the child lived but twelve days. On the second day after this last confinement she complained of severe pain in the lower part of the abdomen; on the eighth day a rectal tenesmus supervened, there being frequent passages of mucus streaked with blood. She thought there was no fever at this time and not much bloating. The rectal disturbance continued about two months; gradually the acute pain and bloody

discharge subsided, but she did not regain her former good health. Her physician named the disease "grip of the bowels," but made no vaginal examination. She consulted one of our leading gynecologists, who ordered hot douches and several months in bed. After about ten weeks symptoms referable to the rectum ceased; then constipation, heretofore mild, gradually increased in severity. Six months after this last childbirth my father first saw the patient. She was then having a chill nearly every day, with a temperature varying from 100 to 101°. The next week I saw her and found her in a deplorable condition, though not extremely emaciated. Her entire trouble was referred by herself to the difficulty in securing a passage of the bowels; the pain attendant thereon she described as "something terrible," with bearings down like labor pains. A movement was only secured by the repeated administration of large doses of powerful cathartics, and was accompanied by a distressing burning sensation in the rectum, which could not be relieved. The anus, she said, would at these times "draw up toward the inside," while the passage was "very small, like a baby's." Her other symptoms were accompanied by a persistent anorexia and daily vomiting, that threatened a speedy termination of life unless relief should be obtained. Her temperature remained two or three degrees above normal, the pulse being slightly accelerated, feeble, and easily compressible.

A physical examination revealed intestines moderately distended with gas, but no abnormality of other organs. A rectal examination disclosed, at 3½ inches, a firm annular stricture, so small and resisting that the examining finger could not be made to engage in it. On making a vaginal examination, the cervix was found free; that is, as free as is possible with a fixed fundus. The fundus was retroflected, drawn to the left and firmly fixed to the sacrum. Passing from the fundus laterally could be felt on either side a firm band, not sensitive to pressure, shorter and thicker on the left than on the right side. These bands occupied the site of the superior border of the broad ligament, passing off from either side of the uterus at its fundus, but did not extend throughout the width of the broad ligaments down to the cervix. Ovaries and tubes could not be differentiated.

Diagnosis was made of a retrodeviation of the uterus, with adhesions not only of the uterus but of the tubes and ovaries and posterior pelvic wall, associated with a stricture of the rectum, produced by the shortening of the broad ligament. The condition was considered to be of puerperal origin. The temperature,

chills, and other constitutional symptoms were thought to depend upon the absorption of ptomaines and toxines, the result of the retention caused by the stricture, rather than upon any active inflammatory process in the pelvis.

I operated the case in Charity Hospital, assisted by the house staff, and in the presence of Drs. G. C. E. Weber, Lucas, and W. J. Scott. The abdomen was opened by a four-inch incision, with the expectation of at least partially relieving the rectum by freeing the uterus and making a ventrofixation. The uterus was found retroflected, drawn to the left and fixed to the sacrum; so firm were the adhesions, and to such an extent had the cicatricial contraction taken place, that the peritoneum of the fundus had a white, glistening, bloodless appearance. The left tube and ovary were not found, but their site was occupied by a mass of new connective tissue. The rectum skirted along the promontory of the sacrum just above the fundus of the uterus, and dipped down into the pelvis to the right instead of to the left of that organ. The appearance of the pelvic peritoneum was very remarkable; the amount of adhesions and new connective tissue was much greater than we had expected from the history of the case. We still considered it due to a puerperal infection of severe type, and were surprised to find so much evidence of difficulty in the pelvis in a case having so little trouble following the confinement, especially in a case showing no active symptoms of inflammation. The appearance of the peritoneum was as though the patient had recovered from a very severe infection.

Commencing from above to free the rectum, the vermiform appendix was found adherent to its anterior surface; this was freed, and, being normal, was put over into its proper place. The tube and ovary, containing a small cyst, which ruptured during the manipulations, were next lifted from the rectum. Very little ovarian tissue was left, the most of it being substituted by cicatricial tissue. The right broad and the round ligaments were found to be very much shortened; these, reinforced by the inflammatory new connective tissue between the rectum and broad ligament, forming a firm stricture of the rectum. The broad ligament, including the round ligament, was cut between forceps well down into Douglas's pouch, and the anterior and posterior layer of peritoneum stitched together on either side of the cut. On incising the broad ligament the retraction of the ends was very marked; an approximation of the fresh surfaces would have been impossible, even if desired, because of the great con-

traction of the tissues. No retraction of the abdominal peritoneum was noted. After stopping the oozing, and flushing the abdomen, the external incision was closed with silkworm gut. A rectal examination showed that the stricture had been immediately relieved.

Convalescence was uneventful. Following the operation the temperature at once dropped, and in two or three days was normal. The external wound healed by first intention, and the patient was able to leave the hospital in two weeks. One month after the operation I have in my notes the following: "Feels perfectly well. Cannot get enough to eat, and no discomfort from the eating. As soon as her head touches the pillow she is asleep; first restful sleep for six months. Bowels move every day, and has taken cathartic but once since coming home." To-day, six months after the operation, she says her health is better than ever before, which is surely not the usual result of the ordinary operation for stricture of the rectum. The foregoing history was reported at the Ohio State Medical Society in 1893, under the title, "Rectal Stricture of Puerperal Origin Relieved by Laparotomy." The following history has never before been reported.

This favorable condition lasted for about eighteen months, when she suddenly became ill, the symptoms being those of acute intestinal obstruction. Not being the family physician, however, I did not see her for four or five days; when I was called she presented all the features of a well-marked case of obstruction of the intestines, including stercoraceous vomiting, except that there was very little bloating. A diagnosis of obstruction of some of the first loops of the jejunum was made and immediate operation advised. On opening the abdomen, the reason for the lack of intestinal distention was evident; a remarkable condition was found in the pelvis. There was no ascites present, the first portion of the jejunum was greatly distended and congested, and many of the loops of the ileum and large intestine were collapsed. The exact point of obstruction could not be known, as it was not well-defined, but was produced by a large number of adhesions of the small intestine, which were located in the pelvis. A very great change had taken place in the appearance of the pelvic tissues; all loops of the intestine which dipped down below the brim of the pelvis were firmly adherent in a large mass of exudate. The pelvis looked as if some plastic material with the setting characteristics of plaster of paris had been poured into the pelvis, filling it full up to the brim; all of the intestines which

had come into contact with this were firmly adherent to it; no trace of any of the pelvic organs could be seen. Although this mass looked like organized plastic exudate, there were no evidences of recent inflammation. Vigorous efforts to relieve the intestinal obstruction proved futile, and the condition of the patient became such as to necessitate the closure of the abdomen without accomplishing the desired result. The patient died the next day.

A partial postmortem was held twelve hours after death; a careful examination was made of all of the organs of the thorax, abdomen, and pelvis; nothing of pathological import was found in the heart, lungs, pleura, pericardium, liver, spleen, pancreas, kidneys, abdomen or peritoneum except in the pelvis. The mass of exudate noted at the time of operation was so firm that an examination of any of the pelvic organs was impossible without the removal of the mass *in toto;* this proved to be quite difficult, as the substance was as hard as cicatricial tissue; an examination of a specimen was made by the pathologist of the hospital, who reported it to be of inflammatory origin; no evidences of tuberculosis could be found.

This class of cases was first described by Virchow, as long ago as 1853, and the German school of medicine seems to be the only one which has given it serious consideration. Von Bergmann divides chronic peritonitis into chronic exudative and chronic adhesive. Under the latter title, he says: "It is associated with the formation of adhesions, and cicatricial contractions of the peritoneal folds. It is most likely to occur in the neighborhood of the female pelvic organs, the gallbladder, a flexure of the colon, the root of the mesentery, or the omentum. The effect of the inflammation is thickening of the peritoneum, which later leads to contraction. Adhesions which may form between movable abdominal organs interfere very much with their function, and, indeed, may threaten life. Chronic adhesive peritonitis may follow acute inflammation in some abdominal organ. It may also follow injury or a laparatomy. But it may also develop in a chronic manner without such predisposing cause, or, indeed, without any apparent cause. In most cases, however, it is a secondary manifestation of obscure inflammation of some portion of the alimentary canal. The symptoms are usually well localized."

The description of von Bergmann is broad enough to include the above case, but he further says: "Surgical treatment may be demanded, either because of the degree to which chronic ad-

hesions interfere with the natural functions, or because they have produced some acute condition, such as obstruction of the intestine, which threatens the patient's life. If division of the bands and separation of the adhesions have no permanent good result, he believes in removing the starting-point of the inflammation, if this is possible. Thus, the points of attachment at either end of the fibrous cord may be excised. If the adherent surfaces are extensive, they cannot be treated in this manner unless the diseased organ is one whose presence may be dispensed with. Still, encouragement is found for operation in the fact that adhesions which normally form after every laparatomy disappear in the course of time."

My own case, viewed in the light of von Bergmann's remarks on treatment, seems not to belong to this class, because, after the removal of the right tube, the apparent complete obliteration of the left, and the entire relief of the rectal symptoms, the case did not tend to recover, but slowly progressed; nor did this progression seem to be an expression of the extent of infection or severity of reaction. If it belongs to this class at all, it would seem to be a sub-division with characteristics of its own. Among American authors this form of disease, until recently, has been entirely overlooked. Before quoting from them, the following case, involving more or less the entire peritoneum, reported by Dr. Wetherill, of Denver, will be of interest:

"Female, 45 years of age, was subject to attacks of vomiting, pain, and flatulency, accompanied and followed by frothy, yeasty, and very offensive stools.

"First Operation.—June, 1902. The vermiform appendix was removed, the right kidney fixed. In making the closure of the abdominal wound a total inability to approximate the peritoneal surfaces below the muscles was encountered. It did not then give us the impression of being thickened. No other pathologic conditions were found at this time, sixteen months before her death.

"Result.—The immediate result was to improve the general health and comfort of the patient. After about a year had elapsed, however, anorexia, nausea, vomiting, constipation, flatulency, and finally great rectal pain and tenesmus with reflected pains into the back and legs, developed. Examination revealed a mass underlying the upper end of the scar of the old incision, which seemed to involve the pyloric end of the stomach, and to be attached to the pancreas. A tight and rigidly undilatable stricture

of the rectum was found, one-third of an inch in diameter, three inches from the anus, and the pouch of Douglas was filled with a tumor, three inches in diameter, which seemed to be incorporated with the rectal obstruction.

"Second Operation.—September, 1903, the usual incision for an inguinal colostomy was made, and through this the pelvic and pyloric masses were examined. The pelvic tumor proved to be a solid neoplasm of the right ovary, and was tied off and removed. The rectal band was entirely distinct from it, and the pylorus and intestine were matted together in a huge mass, which was very adherent to the old scar. The detachment of these adhesions was impossible. The usual colostomy was made, and again the difficulty of the first operation was encountered in closing the wound. The contraction was much more pronounced than before.

"In three weeks an intestinal obstruction supervened and a third operation was performed. A firm attachment of the ileum to the under side of the inguinal colostomy was found; a resection of the ileum and a gastroenterostomy were made. Much difficulty was again encountered in closing the wound in the peritoneum. There was a general shrinking, thickening and contraction of the peritoneum everywhere, but it was most marked in the regions indicated as the favorite sites of the disease. There was no ascites, and no sero-fibrous or fibrino-purulent exudation on the peritoneum.

"The stomach wall was in places more than half an inch thick, and the gallbladder, duodenum, pylorus, and pancreas were so matted together as to be quite inextricable. The pancreas was so small and so infiltrated with connective tissue growth as to be almost cartilaginous in consistency. At three points the bowel was so tied down by contraction of its mesentery as to have its lumen greatly interfered with, and the caliber of the rectum at the point of constriction was reduced to a diameter of less than a quarter of an inch, with its walls quite three-fourths of an inch in thickness. There was also a firm stricture at the pyloric end of the stomach, of only about one-third inch in diameter. The mesentery of the small bowel was rather thickly studded with small miliary nodules, which were apparently not tubercular.

"Most curious of all was the condition of the kidneys, the right, which had been fixed at the time of the first operation, being so firmly attached as to make its removal almost impossible, and both the right and left kidneys presenting a condition of cystic degeneration or hydronephrosis, due to pressure on the ureters

by the shrinking fibrous posterior peritoneum. At the site of each of the former incisions through the peritoneum the viscera were firmly adherent to the cicatrices. The cut surfaces of the thickened stomach and rectal wall were white and glistening, and showed an enormous hyperplasia, or connective tissue growth. This was also true of the pancreas and the mesentery of the bowel, which was very much shortened and thickened throughout. Sections made from different parts, including both periphery and center, had the same general appearance. They consist entirely of connective tissue fibers and cells. The most notable feature of the cellular material is that it is in all stages of fatty metamorphosis. Bloodvessels are present in moderate number, and apparently have normal walls."

In perusing the literature of a rare subject, one is struck with the loose manner in which some authors use descriptive terms; confusion of nomenclature on the part of the author leads to confusion of ideas on the part of the reader. Vaughan says of peritonitis: "The exciting causes are pathogenic bacteria"; and also says: "Chemical substances and mechanical injuries excite a plastic or reparative peritonitis, which has no relation to bacteria." Nicholls notes this fact when he says: "We find that many writers of repute use terms such as 'peritonitis,' 'perihepaticus,' and 'perisplenitis' to designate a condition in which fibrous bands of adhesion connect the various viscera or transverse serous cavities, even in the absence of any sign of accompanying active inflammation. While, of course, such adhesions are an evidence of an inflammatory process, they are the result of such a process rather than the process itself. Now a result cannot be the cause; scar tissue is not the wound, nor are fibrous adhesions inflammation. It is obviously then incorrect and misleading to use a term like peritonitis to designate such a condition. We should prefer to restrict the term to those cases in which inflammation is actually in progress at the time of observation, since fibrous adhesions may be merely evidence of an inflammatory process long since past and gone." Yet the form we are considering to-day is one having the appearance of a healed inflammation; but notwithstanding this, it is distinctively progressive, as evidenced by the gradual extension of these apparent results. How shall we classify so contradictory an anomaly? Is it a variety of one of the rarer forms described by the authors, or a type *sui generis?*

Let us hastily review authors who have given any descriptions under which they may have classed this variety. Of the class of

cases in which there is a large amount of exudate, Nicholls says, under "Chronic Hyperplastic Peritonitis": "Anatomically speaking, the cardinal features are the production of more or less exudation into the abdominal cavity, and the production of fibrosis leading to the formation of sporadic elevated nodules on the peritoneal surface, or to a continuous fibrous membrane of considerable thickness and cartilaginous texture on the various viscera." Nothnagel uses the terms "peritonitis adhesiva or indurata," and says: "The fibrous adhesions are either delicate and thin, or coarse and thick. In the latter case they may form veritable masses of cicatricial tissue. When the adhesions are numerous and voluminous, the loops of intestine may be so firmly matted together that it is surprising that their contents manage to pass through the bowel."

Bauer has compared the appearance of the mass to a uterine fibroid, for both look like a large, undefined mass of connective tissue traversed by large tubes and canals. Klebs makes mention of "peritonitis deformans." Stengel, in his American edition of Nothnagel (page 760), quotes a case reported by Malcolm in which, after the removal of a large amount of fluid by tapping: "On opening the abdomen, a smooth, round mass filling the lower part of the abdomen was found. It felt like a cyst, and the condition was like that found when a broad ligament tumor raises the pelvic peritoneum high up into the abdomen. It was found to be resonant, and composed of matted intestine." These all seem to be descriptions of excessive inflammatory reactions in infective cases with large serous and fibrinous exudates.

Both Rokitansky and Ziegler state that local thickenings of the peritoneum may arise from the irritation of a simple ascites. Frequently an acute peritonitis complicates those diseases associated with ascites, such as cirrhosis of the liver and Bright's disease, but, as yet, it has not been made clear in how far this event is due to secondary infection rather than to simple mechanical irritation of fluid.

In another class the peritoneum is affected with other serous membranes. As a rule, the upper part of the peritoneum, the pericardium and pluræ, are the parts affected. The disease may begin acutely with fever, rigors, pain in the epigastrium, and tenderness in the hepatic region. Other cases develop insidiously, and do not come under observation until the ascites is well marked. An excellent account of this is given by A. O. J. Kelly, which he describes as "multiple serositis." In this class, which

starts usually as a pericarditis, will be found the "pericarditic pseudocirrhosis" of the liver described by Pick in 1896, the "iced liver" (zuckerglusseber) of Curschmann, described in 1884. These two are most interesting descriptions of an extensive inflammatory involvement, but of more than one serous cavity.

Nicholls rightly says: "Much interest attaches to the question: What part does tuberculosis play in peritonitis? Louis held that every case of chronic peritonitis was tubercular. But this is certainly incorrect. It is quite possible, however, for the tubercle bacillus to produce a hyaline and productive fibrosis of the peritoneal membrane, quite comparable to the simple form. Within recent years numerous observations have been made tending to show that tuberculosis of the serous membranes and of the various organs is not necessarily a destructive process, but is, on the contrary, occasionally a constructive one; caseation may be slight or absent, while fibrous hyperplasia is in excess.

"Analogous to this is that peculiar form of lymphadenitis which, clinically, may be taken for Hodgkin's disease, until the discovery of the specific bacillus reveals the true nature of the case. Why the disease should take this form is difficult to say, unless it be, as Lartigau has suggested, that we are dealing with a bacillus of very low virulence.

"In the hyperplastic tubercular peritonitis the ascites is not likely to be so great as in the simple form, and may, indeed, be absent. I would like here to emphasize the similarity in appearance between the simple and tubercular forms of hyperplastic peritonitis. The resemblance between the two may be so striking that only a microscopic examination of the nodules, with the demonstration of the presence or absence of the tubercle bacilli, will reveal the true nature of the case.

"Another type of chronic hyperplastic peritonitis of tubercular origin is of great practical importance. I refer to a more or less localized form in which a tumor-like mass is produced. The great omentum may be matted into an irregular lump, or the process may be most marked in some part of the intestinal tract, notably, about the appendix and cecum. In other cases the small and large intestines have been found contracted into a ball. This form is liable to be mistaken for carcinoma. Lartigau has collected the literature on this subject. It is important to recognize this variety, for many cases are amenable to operation, and, of course, the prognosis is very much better than in the cases of carcinoma. In a case, reported by Lartigau, of a very peculiar form of hyperplasia with-

out caseation, the disease was proved to be tubercular, and was entirely confined to the wall of the bowel without accompanying peritonitis. Extensive peritoneal adhesions may, however, form a similar tubercular mass involving the cecum, as in a case reported by Koerte. In other cases the great omentum has been involved as well, as shown by Routier and Tedenat." The fact that so many authorities consider all peritonitis as tubercular is the only argument for classifying the cases reported to-day as such, since neither the characteristic tubercular lesions nor bacilli were found in any case on record.

Another form of hyperplastic peritonitis is that associated with carcinoma. It is well recognized that sero-fibrinous or fibrino-purulent peritonitis may complicate a carcinoma of the peritoneum, but occasionally the disease may assume a hyperplastic form, and extend over a long period of time. Some time ago I performed an autopsy on a case which had been ten years in developing, and in which there was a diffuse carcinomatous thickening and infiltration of the peritoneum and tissues of the abdomen and scrotum. The stomach was small and the walls thickened and firm. The intestines were similarly affected. The kidneys, pancreas, testicles, prostate, and bladder were removed with great difficulty, on account of the dense infiltration with which they were surrounded. Even this variety may require a microscope to differentiate it from the cases under discussion.

Osler, under "Proliferative Peritonitis," says: "Apart from cancer or tubercle, which produce typical lesions of chronic peritonitis, the most characteristic form is that in which the essential anatomical feature is great thickening of the peritoneal layers, usually without much adhesion; there is usually moderate effusion, more rarely extensive ascites. The peritoneum is opaque, white in color, and everywhere thickened, often in patches. The omentum is usually rolled, and forms a thickened mass transversely placed between the stomach and colon. The peritoneum over the stomach, intestines, and mesentery is sometimes greatly thickened. The liver and spleen may simply be adherent, or there is a condition of chronic perihepatitis and perisplenitis, so that a layer of firm, almost gristly, connective tissue encircles these organs. On account of the adhesions which form, the peritoneum may be divided into different sacs. In these cases the intestines are usually free, though the mesentery is greatly shortened. This proliferative peritonitis is found frequently in the subjects of chronic alcoholism, and is observed especially in hepatic cirrhosis, but attends tumors, chronic passive congestions, and the like."

Well-marked cases, of whatever kind, may be easily referred to their appropriate classification, but there are many patients with extensive adhesions in which it will be extremely difficult to decide whether the case is one of local reaction, the result of a healed severe infection, or whether it is still progressing and should be classed as a case of chronic adhesive peritoneal sclerosis. The following history illustrates such a condition: Mr. W., a bartender, had good health until several years before his death; some three years prior to my treatment of him the late Dr. Wenner operated upon him, and found a small, contracted gallbladder, with firm adhesions between it and the duodenum; the removal of the gallbladder and freeing of the adhesions gave relief to the gastric symptoms, but in a few months he was as bad as ever. Dr. Wenner then did a second laparatomy, and found the adhesions more extensive; a thorough freeing of these again gave temporary relief. After Dr. Wenner's death the patient fell into my hands. I found him in an extremely miserable condition, with marked evidences of a pyloric obstruction and a large ventral hernia; no ascites or edema were present; at the third operation extensive adhesions were found throughout the upper part of the abdomen, involving the liver, stomach, colon, and omentum. A gastroenterostomy was performed; in order to do so, the entire field of operation had to be developed by separating the extensive adhesions. The patient died by a re-formation of the adhesions causing obstruction. This case looked at first as if it were a case of peritonitis, the result of a gallbladder infection; there was a tendency to extension, although there was no great hypertrophy of the connective tissue.

The essential characteristic of chronic adhesive peritoneal sclerosis is an extensive subperitoneal infiltration with contraction. The disease begins in an insidious manner and runs its course without active symptoms, and without ascites or sero-fibrous or fibrino-purulent exudate. If ascites be present, it is the result of some intercurrent disease which has ascites as one of its features; or possibly, if the peritoneum of the transverse fissure of the liver be seriously affected and a decided encroachment upon the caliber of the portal vein ensue, an ascites might supervene. But this active symptom would be due to the failure of the portal system to perform its normal functions, just as an intestinal obstruction would be the expression of the failure of the intestine to perform its normal functions. The disease appears primarily to be an affection of the subperitoneal and visceral connective tissue, the adhesive features supervening later.

The ensemble of characteristics seems to demand for this peculiar disease a separate classification. The German name of chronic adhesive sclerosing peritonitis expresses a preconceived idea of the pathology, which may or may not prove to be correct. Is it not better to give it a name which will accurately describe the disease?

Chronic adhesive peritoneal sclerosis is a terse definition of the condition, and implies nothing which might later be proved untrue. In discussing this disease with my friend, Dr. Crile, of Cleveland, he tells me that he has a female patient upon whom he has performed three laparatomies for intestinal obstruction. Her disease has been unattended by active symptoms, except the symptoms of obstruction; there has been no ascites, and yet at operation he has found each time a more extensive adhesion, with an ever-increasing amount of exudate.

While chronic adhesive peritoneal sclerosis is undoubtedly rare, the paucity of recorded cases is probably not a correct index of its frequency. It is to be hoped that members of the profession who have opportunity will note carefully similar cases, in order to determine its etiology, and possibly find some means of curing a disease which at present seems to be incurable.

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VAGINAL CESAREAN SECTION IN GRAVE CASES OF PUERPERAL ECLAMPSIA.

By J. H. CARSTENS, M.D.,
DETROIT.

Puerperal eclampsia, like every other morbid condition, is found in various degrees of severity. In mild cases it may attack the patient suddenly and pass off, leaving her in good condition, recurring days or weeks later, perhaps just as mildly, or as a very severe attack. As a rule, a physician is called during the first attack; he can then investigate the case and treat it properly by judicious diet, hygiene, and by the administration of such remedies as will help to eliminate urea and other excrementitious material. If this management proves successful, the patient may be allowed to go on to term, or at least until the child is viable.

If, however, the treatment is of no avail, or the symptoms increase in severity, especially the headache and the eye symptoms, he can at his leisure bring on premature labor by the use of the sterile bougie or other appropriate means, when the process is slow and more like natural labor,—that is to say, in which it takes from twelve to twenty-four or more hours to accomplish delivery.

When, however, the patient objects to premature delivery before the viability of the child, we are confronted by a serious condition, and all our ingenuity is taxed to carry along the patient until that time. Fortunately, nature sometimes comes to our rescue. The accumulation of toxins in the system brings on labor prematurely and the patient is safe. Sometimes, however, sequelæ remain, such as defective vision, impaired hearing, or paralysis of certain muscles.

In the present state of our knowledge we are absolutely at sea to account for the variations in this condition. One patient at the first attack will be seriously affected; in fact, sometimes the first attack continues until the patient dies. In other cases the patients will have a dozen or forty or fifty seizures and finally recover. There are some things beyond our ken, and this is one of them.

But then I was not to write on general eclampsia. I am simply

making a few introductory remarks to emphasize the subject of my discourse,—namely, that vaginal Cesarean section is indicated in grave or serious cases of eclampsia, not in the mild attacks that can be managed by cathartics, diaphoretics, veratrum, premature labor, and the like. I refer only to those very serious attacks, whether it be the first, second or third, where the convulsions do not cease and one attack follows another in rapid succession until death ends the scene if there is not heroic intervention.

In these cases all the chance the patient seems to have is prompt delivery. I know that sometimes convulsions do not occur until after the birth of the child, but these are so rare that they only emphasize the rule. The experience of all is that the convulsions cease as soon as delivery has taken place, or if some recur after the delivery, they are milder and usually end in recovery.

When I had a large obstetrical practice I tried the various means then in vogue for rapid dilatation, especially the hand; also the dilators then in use, such as rubber bags, multiple incisions in the cervix in various directions, and similar devices, all of which proved very discouraging. When Dührssen, of Berlin, first suggested what he termed vaginal Cesarean section for the purpose of rapid delivery, it seemed to me a most plausible method of procedure. When I read of the powerful steel dilator devised by Bossi and others, that method appealed to me; but after observing the reports in the journals and learning that it was a very formidable instrument, that the uterus often tore in a direction unexpected instead of simply dilating, and that the result was often fatal, then I made up my mind that the strong steel dilator had only a limited use. As a surgeon, I naturally came to the conclusion that the correct procedure would be purely surgical, where one had everything under control and knew exactly how far he was cutting or had to cut, and where he could sew up and thus repair the parts immediately, leaving the parturient canal in a good and nearly normal condition.

I see but few such cases now, and only in consultation, and I have been able to operate on only three, short reports of which are herewith given.

Case I.—Mrs. F. T., aged 26; primipara; six and one-half months pregnant; was suddenly taken with convulsions while working in a flower garden, March 17, 1901. Dr. Clippert was called, and gave her chloroform and the usual remedies, but the convulsions continued and he sent for Harper Hospital ambulance, a distance of five miles. She was kept under chloroform

while in the ambulance, and on arrival at the hospital immediately prepared for operation. She was put profoundly under the influence of chloroform. With the retractor in place, the cervix was grasped with vulsellum, and with scissors on each side an incision made up to the junction of the vagina and uterus. The incision was carried a little further inside the uterus, so as to cut the fibers of the internal os. The bag of waters was ruptured, small forceps applied and the child delivered, but which lived only half an hour. This part of the procedure took but seven minutes. The placenta was removed and the uterus thoroughly irrigated. Five catgut sutures were now used on each side to sew up the incision. During delivery the cut was extended by tearing upward and considerable hemorrhage ensued, but this was readily controlled by the sutures. The placing of the stitches took eight minutes, so that the complete operation occupied only fifteen minutes. The woman made a quick and perfect recovery, returning home in two weeks.

Case II.—Mrs. C. R., aged 41; mother of three children; pregnant eight months and a half. She was suddenly taken in the evening, February 17, 1903, with severe convulsions. She was subjected to the most vigorous treatment, chloroform, etc., without avail, by Dr. Meddaugh. I was called the next morning at nine o'clock, twelve hours after the onset of the convulsions. Although they were terrible, I would not risk any operation at her home, but immediately sent her to the hospital in the ambulance. She was prepared in the usual manner and, with the retractor in place, I separated the bladder from the uterus by making an incision across, one and a half inches long, separating the bladder up to the peritoneum, which was not opened. With a knife I now made a clear cut in the median line of the uterus upward to the internal os, applied forceps and made a quick delivery. It took just ten minutes, but the child was dead. The placenta was removed, uterus irrigated and the incision sewed up, which took another ten minutes. She made a complete recovery, although absolutely blind for two days, and for three weeks regions of her vision were absent; but absorption gradually took place, and she now is perfectly well in every way.

Case III.—Mrs. W. H., aged 40; married six years; pregnant for the first time, six months and a half. She was taken with convulsions at ten o'clock at night. Drs. Southworth and Root, of Monroe, were called. They gave chloroform, croton oil, and, in fact, employed the most vigorous treatment. Nevertheless, one convulsion succeeded another, and I was called by telephone, the

distance being forty miles. I arrived in the afternoon at four o'clock, November 1, 1903. She was under chloroform then, and I immediately proceeded to operate. With the retractor in place, I put one vulsellum forceps on each side of the cervix and pulled it down as far as I could. I made an incision across about an inch and a half at the junction of the uterus and the bladder, which allowed me to separate the latter to the internal os. With a knife I now made a clear cut in the median line of the uterus up to the internal os. The bag of waters was ruptured, forceps applied, and a dead child delivered. This took seven minutes. The placenta was removed and dry sterilized catgut used to sew up the incision in the uterus, which bled but very little. A few stitches were also used to sew up the mucous membrane in the vagina. The operation was completed in fifteen minutes. The woman made a perfect recovery.

In former times we sometimes made incisions in the cervix on each side, but sometimes also anteriorly and posteriorly, to enable us to deliver the patient. In my first case I made incisions on each side, but found that during delivery the incision would tear up into the plexus of the broad ligament and a good deal of hemorrhage took place.

With the careful perfection of this operation by Dührssen, and by following his technique, I found only one incision to be necessary, and this directly in the median line anteriorly. The cut can be carried upward into the body of the uterus with very little hemorrhage. We must, however, cut through the mucous membrane across the cervix at its junction with the bladder for one and a half or two inches, just as is done in vaginal hysterectomy. The bladder can be pushed up out of harm's way, and the peritoneum need not be opened at all. Any amount of room necessary can be obtained, and delivery very quickly made. It seems to me that any general practioner can do this; certainly any surgeon who has had some experience in vaginal work can have no trouble, but obtain a prompt and sure delivery and save the patient.

In conclusion, I would say:

First: In grave puerperal eclampsia, as a rule, prompt delivery will save the patient.

Second: That manual effort with the fingers and the hand is too slow.

Third: Powerful steel dilators are not always at hand, and often cause serious injuries.

Fourth: Vaginal Cesarean section enables the obstetrician to quickly and safely deliver the woman.

DISCUSSION.

Dr. E. Gustav Zinke, Cincinnati.—It would not be advisable to enter upon a general discussion of the treatment of puerperal convulsions. It would consume too much time. Let us limit the discussion to Dührssen's vaginal Cesarean section and to deep cervical incisions.

I have no hesitation in saying that, in grave cases of puerperal convulsions, it is best to empty the uterus as soon as possible. Often much valuable time is lost in trying to relieve the patient by other means; although, I am free to admit, that there are some cases of puerperal convulsions which may be treated successfully in a medical way. But, when the case is a grave one; when the convulsions are frequent; when the temperature rises and pulse grows more frequent with each attack; when the albuminuria increases, and the seizures become longer in duration, nothing can be gained by postponing delivery. I differ from my esteemed colleague, Dr. Carstens, in that every general practitioner ought to be permitted to operate in these cases. Great harm is done simply because every practitioner feels himself competent to treat the most difficult labor cases.

Both manual and balloon dilatation are out of place in the case described by Dr. Carstens. Superficial incisions have been practised for quite a number of years, but they are limited to rigidity of the os, not to an intact cervix. Cervical incision, as described by Dr. Dührssen, means a long deep cut through the cervix; by vaginal Cesarean section is meant separation of the bladder from the uterus by a transverse incision in the anterior cul-de-sac, and a long incision extending through the anterior cervix, into the lower segment of the uterus up to the peritoneal fold. It is an easy operation for anyone familiar with gynecological work; it is an easy operation for anyone who is skilled and experienced in surgery, and who has a knowledge of the parts. But I do not think the general practitioner should be permitted to do this work unless he is unable to secure the help of one who is better qualified than himself. The operation is not attended by shock; hemorrhage is hardly ever severe, except, perhaps, when the cut is lengthened during the delivery of the child. This may be avoided by putting a suture in the upper angle of the wound before delivery is attempted. Cervical incisions and vaginal hysterotomy will play a large part in operative obstetrics of the future. I think it will displace both manual, digital, and balloon dilatation to a very large extent.

Before leaving the floor, let me state that we should never be in a hurry to make cervical incisions or vaginal Cesarean section for cases of puerperal eclampsia. Until we are absolutely satisfied the case cannot be treated successfully by internal medication, the hot bath or pack, none of these operations should be done.

Dr. H. W. Longyear, Detroit.—I do not think I can improve upon Dr. Zinke's opening of this discussion. I believe the operation of Dührssen is exceedingly valuable and has come to stay, and will take the place largely in competent hands of the old methods of dilating by rubber bag, and the like, which have been so extremely unsatisfactory. But I do believe we should use medical means, such as venesection, the hot pack, and other means which have been so useful, often stopping the convulsions, before resorting to operative procedures.

I must take exception to the statement of Dr. Carstens that any general practitioner can do this operation. He brought this subject up before our state medical society and was criticised considerably for making this statement. But he is used to this. We all know that the general practitioner is unaccustomed to doing surgical work in the vagina. Naturally he does not understand the tissues very well, and he is not capable of doing that operation. Of course, we have a few men who are surgeons as well as general practitioners of medicine, who no doubt can do this operation, but they are the exception and not the rule. I do not think the statement should go out from this association that it is recommended that the general practitioner should do this operation. It would be a great mistake to do so. With this qualification, I agree with the findings in Dr. Carstens's paper thoroughly, and believe that the operation is exceedingly valuable.

Dr. Martin Stamm, Fremont.—The woman I operated on September 5, 1903, and whose case I reported at the Chicago meeting of this association, gave birth to a child last July at seven and a half months. She did not wait for the doctor's arrival, but was delivered in about half an hour, feels well today, and has a living baby.

One point has been omitted here which Dührssen mentions, and which I think I also mentioned in my paper—namely, he is not a stickler in regard to the anterior incision. He thinks in most cases it is better to make an anterior and posterior incision, and in that way it would enable the general practitioner to undertake the operation, as the incisions then would not have to be made so long and deep. I also mentioned last year that it was sometimes better to make an incision in the portion that presents itself best, and I find that Dührssen agrees with me in his report of a number of cases in the Centralblatt für Gynäkologie, Nov. 13, 1904, and thinks the idea a good one. Sometimes we have a case in which we cannot get at the anterior portion as well as at the posterior portion, and in such a case we may make a short incision in the anterior portion and a longer one in the posterior and push up the peritoneum as far as we can. It is not necessary in every case of puerperal convulsions to make vaginal Cesarean section. I think it is only indicated in cases in which the uterus cannot be dilated rapidly without too great violence. I think attempts in dilating the uterus with force, as

accouchement forcé, mentioned by Dr. Zinke, have a depressing effect on the patient and are apt to produce convulsions.

Dr. M. W. Myer, Columbia (by invitation).—I am not a Fellow of this association, and I rise more for information than to make any criticism. I do not remember hearing anything with reference to the condition of the cervix, that is, whether the essayist takes it into consideration in doing vaginal Cesarean section. The condition of the os, it seems to me, should determine as to whether or not one should make this incision. In a primipara, for instance, in whom the cervix is not effaced, and the os not at all dilated, Cesarean section is indicated at once. But what I desire to know is, would the essayist in a case where the os is somewhat dilated, and where the cervix is effaced, resort to Cesarean section or first try the Bossi dilator, or some other means of dilatation? I think the Bossi dilator can be used to advantage where the cervix is partially effaced.

In regard to the remark made by Dr. Stamm, with reference to the posterior incision, I have only had occasion to see one case of vaginal Cesarean section for eclampsia. In that case the operator made a posterior incision, disregarding the peritoneum, as it was necessary to get a sufficiently long incision, and as a result the patient died from peritonitis. That, I think, is not uncommon in such cases, from the fact that we do not get cases of eclampsia until they have been in the hands of practitioners who have perhaps disregarded antisepsis and asepsis, and as a result of it we do not know what septic material is in the vaginal tract.

I had one case in which I thought of doing vaginal Cesarean section, and this was in a primipara in whom the external os was partially dilated, and the only thing which prevented manual dilatation or the use of Bossi dilator was the internal sphincter, which one could feel as a distinct band. I found by making a simple incision through the muscle fibers of the sphincter I was enabled to dilate the os in a few moments. I would ask Dr. Carstens kindly to answer the question, in closing the discussion, relative to the condition of the cervix.

Dr. Henry Schwarz, St. Louis.—I have nothing to add to the discussion except to say that it is unfortunate that we call this rather extensive incision of the cervix a Cesarean section. It is rather confusing to those physicians who are not well informed as to the nature of the operation. It really is simply an addition to our means of rapidly dilating the lower parturient canal. It belongs to the same class of operations as accouchement forcé; it has come to stay, and it is a valuable addition to our means of dilating the cervical canal. But we should find a proper name for the operation. It is not, strictly speaking, a Cesarean section, and it was never intended to take its place. The name is an awe-inspiring one, and I think the profession should change it.

Dr. E. Gustav Zinke, Cincinnati.—There is a distinct difference between cervical incisions and incisions of the os. The incisions Dr. Myer spoke of are only incisions of the os, the cervix being obliterated; these incisions do not amount to much. Cervical incisions include the vaginal as well as supravaginal portion of the cervix and the internal os. Vaginal hysterotomy would be the proper name for Dührssen's vaginal Cesarean section; although I think as a compliment to the work Dührssen has done, he is entitled to the consideration thus accorded him.

Dr. Myer.—I think Dr. Zinke misunderstood my reason for mentioning the case I operated on. I did not mention it as one of Cesarean section, because I fully appreciate what that is. I have had occasion to see Dührssen himself do the operation. I mentioned it to see whether or not in such a case Dr. Carstens would have done Cesarean section, or would have resorted to a simple incision. I did not even make Dührssen's deep cervical incisions in my case, but a small one into the internal sphincter, which could be felt as a distinct band contracting on my fingers. For that reason I made an incision through the internal sphincter, disregarding the cervical canal entirely.

Dr. Carstens (closing the discussion).—With reference to making the incision posteriorly, a short cut in the cervix is not sufficient; you must open the internal os, but you often cut into the peritoneum if you make the incision posteriorly. If you cut anteriorly you make an incision in the position I show you in this diagram; you separate the bladder like this (indicating), and push this aside over here something like that. You have got this opening up to the peritoneum. If you cut right through here up to this point (indicating), you open it up and the tissues will separate, and you may open the uterus, put on forceps, and deliver the child without any trouble, the peritoneum not being opened. The idea of this operation is this: You should not open the peritoneum, which is so essential, because some general practitioners are not as aseptic as they might be, and if the woman has any chance, certainly she has a better chance if the peritoneum is not opened.

I do not think we should pay any attention to the condition of the os in some of these cases; whether it is partially dilated, whether the internal os is obliterated or not, or whether there is any labor at all, but all depends upon the character of the convulsions. If the convulsions are mild, we do not do this operation. We should reserve this operation for the severe and grave varieties of puerperal eclampsia. All other cases we can treat on general principles.

Dr. Hall.—May I interrupt you, Dr. Carstens, to elucidate a point?

Dr. Carstens.—Certainly.

Dr. Hall.—In the second case which you have pictured by

drawings on the blackboard, could you not have introduced two fingers, with the patient under an anesthetic, and dilated the cervix, put on forceps, delivered the woman, and have done it within five or ten minutes?

Dr. Carstens.—I do not think I could have done so; at least, that was the impression I had at the time.

Dr. Hall.—You would not dilate, then, but you would cut the cervix?

Dr. Carstens.—Yes, as I consider it a simple operation, but I would dilate with the hand if easy.

With reference to the remarks of Dr. Longyear, the young general practitioner who knows anything at all and has the welfare of his patient at heart, and who looks after his reputation, will get help for that woman when he can. He always does that. If, however, that same general practitioner is in a dilemma and there is no help to be got; if he has a desperate case and thinks the woman is going to die on his hands, having seen many operations of various kinds, surely he will try to do the operation himself, and maybe he will succeed without any trouble. He may not sew up the wound as accurately as some of you, but he has delivered the woman, saved her life, and will doubtless get someone else to sew up the lacerated cervix later. But the man who does not know enough to call in counsel when it is necessary is beyond help.

Dr. Schwarz.—I would like to ask Dr. Carstens whether a full-grown child has ever been delivered through the anterior incision of Dührssen?

Dr. Carstens.—I have delivered them at eight and a half months.

Dr. Schwarz.—Dührssen's cases were like yours.

Dr. Carstens.—One of mine was delivered at eight and a half months; another at six and a half months. Of course, it makes a difference whether the child is full-grown or whether it is living or dead.

Dr. Stamm.—I want to correct one impression that I fear was made by the remarks of Dr. Carstens. He said that in making the posterior incision we go into the peritoneum at once. That is not the case. In my two cases I dissected about four inches and pushed the peritoneum up. One can loosen it up four or five inches.

Dr. Carstens.—As a general rule, you go right into it. Certainly, the general practitioner would go right into it. For that reason I think the anterior incision is better. If the internal os is partially open and you have simply a stenosed condition of the cervix, with everything else obliterated, you have then a cervix that will not open up; you can cut posteriorly and you

would not get into the peritoneum; you can cut anteriorly and not separate the bladder at all. But those are exceptional cases.

Dr. James F. W. Ross, Toronto.—I quite agree with what Dr. Stamm has said regarding pushing up the peritoneum. That is a bugbear not to be thought of for a moment. Those who do vaginal hysterectomies know very well how difficult it is to pull down the peritoneum behind the uterus instead of being in danger of cutting into it, and when that is the only objection to the posterior incision, it does not hold. It is easy to push the peritoneum up and still make a cut without going into it.

PURULENT CYSTITIS WITH SYMPTOMATOLOGY RESEMBLING APPENDICITIS.

By MAGNUS A. TATE, M.D.,
CINCINNATI.

The conditions found in a little patient were such as to justify the foregoing title, and may be summarized as follows:

George W., aged seven, was attended by Dr. Louis Linss of Cincinnati for an ordinary attack of scarlet fever, from February 25 to March 18, 1904. Three days later, that is to say, March 21, Dr. L. was called again to see the boy, on account of a swelling of feet and hands. On the morning of April 1 all edema had disappeared, urine was highly colored, but normal in quantity; no sugar, albumin, or casts; the child ate a good breakfast, slept soundly, played about the room, and seemed apparently well.

That afternoon Dr. Linss called to see the patient, as he had a bad chill, vomited, and was suffering with a pain in the abdomen; temperature 99½°, pulse 90.

April 5 the patient had two more attacks of vomiting, pain in the abdomen was constant, and he had not slept for twenty-four hours; temperature 102°, and pulse 130.

Dr. William Johnson saw the case with Dr. Linss, and upon examination of the abdomen they found an uneven swelling, which extended to the umbilicus and over the right lumbar region. Upon palpation, exquisite tenderness developed over the appendix. A diagnosis of appendicitis was made, but further consultation was asked for. The next day, April 6, I was called, which was six days after the initial vomiting spell and chill, since which time the child had been crying and moaning day and night and could not sleep. His face wore an anxious expression and was covered by a cold, clammy sweat, with dark semicircles under the eyes; sordes on the teeth, and the tongue was very dry; temperature 102°, pulse 132, very irregular; abdomen swollen, especially so on the right side, and such marked tenderness that the child screamed if the lightest pressure was made over the region of the appendix; bowels constipated, and the urine highly colored. Considering the

irregularity and intermittency of the boy's pulse and his feeble condition generally, we considered it wise to postpone operating for twenty-four hours, hoping, by means of stimulants, to get him in a more favorable condition.

The following day there was no improvement, the pulse being even worse. The child had moaned and cried all night with the intense pain, was profoundly exhausted, had refused nourishment, and the temperature still remained at 102°.

Before placing him on the operating table, a bed-pan was placed under him and he passed nearly a pint of urine. Chloroform being administered, an incision on the right side two inches in length was made over the most prominent portion of the swelling. It revealed a dark-colored sac and a number of adhesions. The incision was lengthened to three inches; some adhesions were broken down with the finger, but a few of them were so firm that they had to be cut. The enlarged opening gave us a field of about two inches to work in, and this sac in appearance was not unlike that of a gangrenous bowel. We were at a loss to say exactly what it was and, as adhesions limited the field, gauze therefore was packed about opening, the child turned to right side, and a half-inch cut was made into the sac. A dark-green fluid spurted out, which had a strong, heavy odor of stale urine. About two quarts of fluid was evacuated and a finger was introduced into the sac, which proved to be the bladder. The opening into the bladder was sewed up, the adhesions binding the bladder on top to the abdominal wall and on the right side to large and small intestine were broken up, and the enlarged, thick-walled viscus was dropped back into the abdominal cavity. The appendix and appendiceal region, except for the presence of some adhesions, were normal. An opening was left in the abdomen for gauze drainage, the rest of the wound being closed.

The subsequent history was as follows: the bladder was emptied by means of a retention catheter for forty-eight hours; after that time catheterization was done night and morning for three days. There was a gradual decrease in pulse and temperature, and in seven days both were normal. On the third day a quantity of fluid drained out through the opening, but this gradually ceased, and on April 23d, sixteen days after the operation, the abdominal wound had closed, and the patient now enjoys good health.

This case is of interest because:

1. It presents an unusual history.
2. The symptoms and history following scarlatinal nephritis led

us to suppose that we probably were dealing with a case having appendicitis as a complication.

3. The patient urinated regularly, and at no time was there dribbling of urine.

4. The presence of adhesions and the enlarged bladder (with its thick walls) have only problematical causes, not explained satisfactorily by the history of the case.

DISCUSSION.

Dr. D. Tod Gilliam, Columbus.—While I have nothing special to say on this paper, I do not want it to go by default. It is interesting and instructive. I have never had a case of this kind in which there was a suspicion of appendicitis, though I had a case a year or so ago in Coshocton, O., in which a large appendiceal abscess filled the lower abdomen, it being situated in the middle thereof, and in which I feared there might be a urinary retention; therefore I took every precaution to satisfy myself on this score before operating. I remember one case which gave me a great deal of uneasiness subsequent to operation. I was called to a neighboring city to see a patient who had an abdominal tumor. A surgeon of wide repute had been called previously and after a painstaking examination had pronounced it a uterine fibroid (so I was told by the physician in attendance), and proposed to operate on it. I found the patient with a tumorous mass filling the abdomen, a very rapid pulse, haggard in countenance, depressed in spirit, and most exquisite tenderness over the site of the tumor. She was suffering day and night despite the use of narcotics. I could get no history as to the origin of the tumor, though the exacerbation of all her symptoms dated back only a few weeks.

She had been married some years but had borne no children. There had been a disturbance of menstruation of late. Physical examination was negative. I could make out nothing but an ill-defined mass in the abdomen, though I expressed the belief that it was cystic. I made enquiry with regard to the urine, and was told that she was passing it regularly and there was no dribbling. I concluded that whatever the mass was, it was inflamed and that no time was to be lost if the patient was to be rescued. A few days later I came down early in the morning with my assistants prepared to operate. I asked the nurse with reference to the urine before the woman was brought on the operating table, and she informed me that the patient had been passing urine all night. Placing the patient on the table, one of the assistants introduced a long catheter and drew about an half-pint of urine. This had no appreciable effect on the tumor. I made my incision and came down upon a dark sac, such as has been described. I investigated

and found there were adhesions everywhere,—I could not get to the pelvis at all. I made an incision into the sac and let out a bucketful of urine, and even after this I could not get to the pelvis, nor make out anything definite with reference to the tumor or its environments.

I closed the opening into the sac and sutured the wound, leaving a drain down to the incision in the sac. I think it was some thirty-six or forty-eight hours after this she miscarried, the fetus, as I recollect, being some three or four months old. Subsequently she died. Whether this was the bladder or a cyst of the kidney I have never been able to determine, but am inclined to think it was the bladder encroached upon by an impacted, pregnant uterus and angulated in such a way as to divide it into two chambers—one superimposed upon the other. In such a case catheterization would empty the lower chamber and lead to the belief that the bladder had been emptied and thus lead to a false diagnosis. In the ordinary form of retention, dependent on pelvic impaction, the male catheter should always be used, as the urethra is elongated. In every case of acute distention of the lower abdomen accompanied by great pain and tenderness, high catheterization should be practised to exclude bladder implication.

Dr. Thomas B. Eastman, Indianapolis.—Ordinarily we have confidence we can diagnosticate appendicitis readily, and when I first read the articles of Maurice H. Richardson, of Boston, in which he discussed appendicitis and its complications, I felt I was quite competent to differentiate between pneumonia and appendicitis. However, in the early spring there came under my observation a boy, about eight years of age, the case having been sent to us as one of appendicitis. Physical examination of the chest and the consideration of his temperature, pulse, and appearance showed distinctly that he had some lung complication. Thereupon we asked a physician skilled in internal medicine to see him with us. He at once determined the boy had pneumonia, and was rather dubious as to whether he had appendicitis at all. We could not believe the boy did not have appendicitis, and said he might have pneumonia and appendicitis at the same time. We therefore operated, and immediately after the operation the boy began to pursue the usual course of cases after operation for appendicitis, and the symptoms of pneumonia subsided. Whether or not the boy had pneumonia, I do not know. He certainly had appendicitis, and the symptoms of pneumonia subsided promptly after the operation.

GUNSHOT WOUND OF THE ABDOMEN—REPORT OF A CASE—EIGHTEEN PERFORATIONS—INTESTINAL RESECTION (5 FT. 7 IN.) WITH MURPHY BUTTON—RECOVERY.

By JOHN D. S. DAVIS, M.D.,

BIRMINGHAM.

I PRESENT a recent clinical history that embraces interesting features relating to the methods of dealing with gunshot wounds of the abdomen, involving the intestines:

Mrs. Phillips, a white woman, 23 years of age, of Stoutt Mountain, Ala., was attempting to place a rifle in a rack on the wall; the gun was discharged with the muzzle about eight inches from the abdomen. The bullet, a thirty-two caliber, entered in the median line midway between the umbilicus and the symphysis pubis, ranging backward, upward, and to the right, and was deposited in the muscles of back and on the right side. The ball in traversing the abdomen made eighteen gut perforations, and two cuts in the intestine that went down to the mucous membrane. Sixteen of the perforations and the two seromuscular wounds were in the small intestine, and two perforations in the transverse colon. The bullet cut two mesenteric arteries, which caused a large quantity of blood to escape into the abdomen.

The patient was shot at 4:30 o'clock in the afternoon of February 2, 1904, and was brought a distance of eighty miles on a freight train to Birmingham by her physician, Dr. W. O. Watson, and carried to Hillman Hospital. At nine o'clock I saw the patient and had her prepared for section. Her temperature at this time was 102° and pulse 130. She probably had fever at the time she was shot.

A seven-inch incision was made in the median line, a large quantity of blood turned out, and the bleeding vessels controlled by hemostatic forceps. The two perforations in the transverse colon were so near the mesenteric border that I stripped up the mesenteric serosa and turned the mesenteric border in, as though

the two openings (one on each side) had been one large opening, including the mesenteric border, and closed with interrupted silk sutures. I then brought the mesenteric folds back and sutured over the wound. Four perforations and two seromuscular cuts in the small intestine were turned in and closed with small loop silk sutures. Two perforations were situated so close together that they had to be closed by flexing, pouching, or looping the mesenteric border, the bowel being bent on its convexity, so the two wounds could be closed as one large wound by interrupted longitudinal loop sutures sutured in line of the axis of bowels. There were two other perforations that could have been closed by suture, but the openings were between two mesenteric perforations on one side and eight on the other, and I thought it better to lose one more foot of intestine than to do two resections.

I resected that part of the intestine containing the ten mesenteric perforations (sixty-seven inches), including the two large perforations, in the convexity of the ileum, and closed with the third size Murphy button. The resected bowel and its mesentery were removed, the vessels ligated, and the gap in the mesentery closed with interrupted silk sutures. The abdomen was flushed with hot normal salt solution; plain gauze drainage was used, and I closed abdomen with through and through wormgut sutures.

The operation lasted an hour and a half; normal salt solution hypodermically and strychnine were given. Nausea lasted twenty-four hours and was troublesome, increased, probably, by the morphine that had to be given for pain and restlessness. The drainage was removed on second day. The patient was in a ward with three pus cases, and on the eighth day she developed a small mural abscess, due to infection through a stitch that traversed the drainage track. The button was passed on the twenty-first day, and she left the hospital March 1, 1904. A week later she was doing housework, and is now perfectly well. The temperature and pulse gradually declined, until the normal was reached on the seventh day, and, but for the infection referred to, her convalescence was uninterrupted. Success in this case was due to early operation, which was begun in five hours and completed in less than seven hours from the time she was shot.

I desire to exhibit in this connection a metal button, which is made in four sizes like the Murphy button, except it has no spring. The spring serves no good purpose, is an additional expense, and makes the button more difficult to apply. I also desire to show a metal horseshoe button which I had made to take the place of my catgut horseshoe plates which I have been in the

habit of using to close large wounds on the convexity of the bowel, without destroying the mesenteric border by resection. I exhibited this button recently before our local society of Birmingham as a substitute for the catgut horseshoe plate, but on further trials I find it not so practical as the catgut plates.

The two wounds in the convexity of the bowel, which were so close together that they had to be closed as one by flexing the bowel and suturing longitudinally (looping the mesenteric border), were suitable for the use of the horseshoe plates, but I had none at hand at that time.[1]

For a long time I discarded all devices except the catgut horseshoe plates for closing large wounds on the convexity of the bowel, but finally I began the use of the Murphy button in my intestinal work, which I have for some time applied without the spring. And instead of the catgut plates I have used the metal horseshoe button, though it is not yet perfectly satisfactory. I am now at work on a hinge horseshoe button, which I hope to make practical.

DISCUSSION.

Dr. John Young Brown, St. Louis.—I desire, first of all, to congratulate Dr. Davis on his brilliant piece of surgery. At the last meeting of this association, held in Chicago, I reported twenty-three cases of gunshot and stab wounds of the abdomen, and went, more or less, into a discussion of the technic of this kind of surgery. I do not know of any branch of the surgical art more important than that which deals with gunshot wounds in the cavities and of the viscera.

My experience in this line of work has taught me that the results to be obtained are dependent, first, upon the time of operation; second, on the manner in which the operation is done. I trust you will pardon me if I go a little into detail in regard to the technic of this character of surgery, and my apology for it is the importance of the work and the opportunities I have had to do work of this character. Since my report at the Chicago meeting, I have operated on quite a number of cases, and we have gradually evolved a technic at the city hospital which I think is about as good, and is followed by as good results, as any we can possibly adopt.

In the first place, I want to take up the discussion of the incision in cases of this kind. In all gunshot wounds of the abdomen I

[1]In the year 1889 I read a paper before the Southern Surgical and Gynecological Association upon an experimental study of intestinal anastomosis, in which (Transactions S. S. and G. Assn., 1889) I illustrated my catgut plates and horseshoe plates.

am convinced that the median incision is the proper one, because through this incision we can get at all the viscera. In contradistinction to gunshot wounds of the abdomen we have stab wounds of the abdomen. In the latter, I think it is wise, if the wound is located near the side of the abdomen, to enter through the linea semilunaris, because the bowel at this point is fixed and we can generally locate the wound in the gut through an incision of this kind. But in a gunshot wound it is absolutely essential that the entire abdominal viscera be searched, for the reason that we may sew up six holes and leave one, and then the object for which the operation was performed is defeated.

Another most important point in dealing with conditions of this kind is the character of search that is made. We invariably make a median incision and make a search after this manner: the stomach is examined fore and aft; the liver and spleen are then gone over. Beginning at the angle of Tritz, the small intestine is followed to the ileocecal valve. The ascending, transverse, descending colon and sigmoid flexure are then examined. A systematic search of this character will preclude the possibility of overlooking injuries to peritoneal contents. It is bad surgery to enlarge a wound in the anterior wall of the stomach to determine whether there is a wound in the posterior part of the stomach.

In dealing with perforations I quite agree with Dr. Davis that it is very much more prudent to resect bowel, where we have the perforations in close proximity,—and we can resect six feet as well as we can two feet,—than to close up multiple perforations, leaving bowel of doubtful nutrition, perhaps with contracted lumen, which would interfere with the passage of fecal matter.

In regard to irrigation, I may remark that about the only class of abdominal cases I ever irrigate is gunshot wounds of the abdomen. Irrigation here is absolutely important. As a rule, we have multiple perforations, attended with the extravasation of fecal matter, with blood gravitating to the fossa on either side and to the pelvis, and in addition to the mechanical cleansing effects of the irrigation, we use it frequently early in operation to combat shock. It is the best method of giving hypodermoclysis I know of. In cases badly shocked, if irrigation is begun immediately after the abdomen is opened, the peritoneum will absorb the saline solution rapidly, and it is the best method of combating shock at our command.

As to the method of making anastomosis, this is a character of surgery in which it is essential to do quick work to get good results. I have had quite a large experience in the use of the Murphy button, and I am convinced that of all methods of making an end-to-end anastomosis the button is by long odds the most perfect in work of this kind. In cases of this character, where the patient is suffering from multiple perforations, is bleeding and badly shocked, anastomosis can be made with the button very much quicker than by any other method, and the results are much more satisfactory. My faith in the efficacy of the button and the beauty of the anastomosis that is made by it is such that I have

frequently felt tempted to write a paper on "theoretical objections to versus practical experience with the Murphy button." I have never had a disaster following the use of the button that could be attributed directly to it. The button, properly applied, makes a perfect anastomosis, and we have never had a case in which disaster could be attributed to the button. Post-mortems after its use have invariably shown perfect approximation and no leakage.

As to the character of closure in this kind of surgery, the incision being of necessity long, it is exceedingly important in all cases, where it is possible, that we close with tier stitches, with re-enforcement of silkworm gut or silk.

In the last year I have had two cases that I will briefly summarize, one recently of gunshot wound of the liver, and one just after I came back from the Chicago meeting of this association last year. One of the patients was a policeman, in whom I resected seventeen inches of bowel for seven perforations. His condition was bad at the time. I closed the incision with a through-and-through suture; he got along nicely for five days, then he complained. We took the dressings off, and found the intestines out on the abdomen. He was chloroformed; the intestines were put back into the abdomen, and no disaster followed.

About two weeks ago I had a case of gunshot wound of the liver in a man who bled profusely. I closed him up quickly with through-and-through stitch, for the reason that I was not justified in using a tier suture. Four days after closure we found his intestines out upon the abdomen, put them back, closed the opening, and there was no trouble following. But it is a dangerous proposition to take chances of this kind unless we have to do it. We can make a tier closure nearly as quickly as we can a through-and-through one, and I believe this closure should be made in all cases where the condition of the patient permits.

Drainage is a point of exceeding importance. I never use gauze in the abdomen in a gunshot case if I can avoid it. In gunshot wounds of the liver it is absolutely essential that they be plugged; they bleed to death if we try to sew. We must tampon them to stop hemorrhage. In the abdomen I never use a gauze drain. If we use the gauze drain in the abdomen in a short time we will find that the intestines are glued into the meshes of the gauze; hence there is a good deal of difficulty in pulling the gauze out, and I do not believe it does any good as a drain. It is a harmful procedure. The method we use at the city hospital is to close the abdomen tightly and put a glass tube in the pelvis through a stab above the pubes, and as soon as the patient's condition permits we put him in the exaggerated Fowler position, and drain with a glass tube for twelve or twenty-four hours, just as some of us used to do, and as I still do, in the pelvis after operation in pus cases.

Regarding the after-treatment of these cases, it is exceedingly important that the stomach be washed out before the patient comes off the operating table, and then after he gets off the table to keep

his rectum full of salt solution, but to give him nothing by the stomach, especially if an anastomosis has been made. In regard to the use of strychnia and morphine, it is a rarity that we give a dose of morphine following an abdominal section. I deal with all sorts of acute and chronic abdominal conditions, and I find that they do better without either morphine or strychnia, and therefore never give either unless the indications for their use are pronounced. On a recent visit to the clinic of a distinguished surgeon, I asked him what after-treatment he gave his abdominal cases, and he remarked that if the next day he found his patient was doing well, he was so damned glad of it he didn't give him anything. I think this is pretty good advice.

As to the cause of death in these cases, a large number of them can unquestionably be saved by early operative work. A certain proportion of them are infected by the bullet as it enters, and no surgery will save them. I recently did a resection in a negro for ten perforations of the bowel. He had a streptococcus infection, which was carried in by the bullet. The autopsy showed that no perforations had been overlooked, and that the button union was perfectly tight, and yet he died of streptococcus peritonitis, which was demonstrated by a bacteriological examination, death occurring twenty-four hours after the operation. This was a case that promised well. I thought the man would get well without any trouble, but the infection killed him.

There is another class of cases that come in badly shocked; they have bled to such an extent that they are certain to die. By a look at such cases a fatal result can be foretold. The mortality in a large series of cases of this character is greatly increased by operating on them in such a desperate condition. It is necessary in a public institution such as ours to operate on all of them regardless of the condition, because if we do not, and the case is brought into court, the lawyers will say that if they had received the proper treatment at the hospital they would probably have gotten well. Then, again, our judgment is not infallible, and some of these cases that are apparently hopeless are saved by quick, careful and thorough surgery.

Again, I want to extend to Dr. Davis my hearty congratulations on the brilliant result he obtained in this case. I expected my first assistant, Dr. William J. Doyle, here this morning to report in connection with this discussion an interesting case in which he operated three weeks ago at the hospital. The patient was a negro, and is now practically out of danger. Section revealed multiple bowel and mesenteric perforations. Dr. Doyle did a brilliant piece of work, resecting six feet of ileum, anastomosing with the Murphy button. The patient is now practically well.

Dr. Walter C. G. Kirchner, St. Louis (by invitation).—During the last four years I have had opportunity at the city hospital of watching and studying gunshot wounds of the abdomen while in the service of Dr. John Young Brown and his predecessor. Dr. Brown has summed up the treatment generally insti-

tuted at the hospital, and referred in particular to a case I operated on some two years ago.

The patient was shot with a 32-caliber revolver in the lower part of the abdomen, the bullet entering between the umbilicus and pubes and a little to the right of the median line, taking a direction downward toward the left. The man's abdomen, when explored, was filled with blood, and it was found that there were numerous perforations. Examination was made in a systematic manner, and in close proximity four perforations were found, the intestine being so badly lacerated that resection was necessary. At this site a Murphy button was inserted and an anastomosis made.

Further examination showed that there were other perforations lower down along the intestine, and it was necessary to make a second resection. This anastomosis was made with the Connell suture. Altogether about four feet of intestine were resected, there being fourteen perforations of the intestine and six lacerations of mesentery. The patient made a perfect recovery, so far as the surgical injuries were concerned. The Murphy button was passed on the fifteenth day.

On the eighteenth day, while convalescing, he was suddenly seized with pulmonary hemorrhage, from which he died. An autopsy was made, and it was found that the trouble was due to a tubercular focus. There was no peritonitis. At the autopsy it was difficult to find the line of union of either the Murphy button or the Connell suture anastomosis. The intestines were therefore removed intact and further search was made. The Murphy button anastomosis could only be detected by the thickening that occurred in the mesentery, and the Connell suture anastomosis was also found in this way. In each instance the mesentery was cut close to the intestine, and it was interesting to note that, although at the site of the Connell suture anastomosis there was a resection of over three feet, the redundant mesentery had contracted until it was no larger than an English walnut. The anastomosis in each case was perfect. While cases of double resection have been reported, with but one exception, that of Dr. Louis Rassieur's case at the city hospital a short time before my operation, I have not been able to learn of another case in which the Murphy button passed the Connell suture. The efficiency of the suture and button method was thus illustrated in one case.

I have with me sections from the intestine of this case showing the anastomosis by means of the Murphy button and by application of the Connell suture, which is a through-and-through suture involving all the coats of the intestine, all knots being tied in the lumen of the intestine. By examining the specimen of the Connell suture anastomosis the so-called diaphragm can readily be seen. Union has taken place at the peritoneal approximation, not throughout the ring-like diaphragm, but at the cut margin and at the opposite side where the intestinal walls were folded in. The union at the intervening or central portion of the diaphragm was not firm.

The second specimen shows the anastomosis by means of the Murphy button. Owing to the necrosis which necessarily results when the button is properly inserted there is no diaphragm. The union results from the approximation of the peritoneal coat, and in the specimen the narrow band of union can be seen. The difference between the two methods is here well illustrated, and each for himself can judge as to their utility.

The subject has been fully discussed, and I wish merely to present this case as an interesting one that occurred at the city hospital, and the specimens show very conclusively the difference between the Connell suture method and the Murphy button anastomosis.

Dr. Louis Frank, Louisville.—Permit me to offer a few words in regard to this paper and this interesting subject. I have had an opportunity to do some intestinal surgery. I believe that much of the success of our work in intestinal surgery for gunshot wounds depends not only upon the time that the patient comes to operation after the receipt of injury, but upon those points that have been so ably brought out by Dr. Brown—namely, thoroughness of search, the overlooking of no wounds in the intestine, and absolute control of hemorrhage. Not infrequently hemorrhage is a cause of death when the wounds in the gut themselves have beeen completely and thoroughly closed, especially post-peritoneal hemorrhage. I have seen this cause death in more than one instance when there was perfect closure of the wounds themselves. Rapidity of closure is an important point. In this connection I believe we can work much more rapidly with the Murphy button, but personally I prefer to use the suture, and by preference catgut suture, believing it is better for this purpose than silk. In some of the experimental work I have done on dogs I have found in examining them a short time after operation some of the silk sutures dangling inside the gut. This is an important point and may be a not infrequent cause of trouble.

I have observed the diaphragm formation mentioned by Dr. Kirchner, and on microscopical examination this is very noticeable. In some specimens I have examined it has been difficult to find the point of union by the microscope, the union being so perfect. I have obtained just as good results from the use of catgut suture, and believe it is possibly an advantage to use the suture method in preference to buttons or mechanical devices of any sort whatsoever, recognizing, at the same time, the value of the Murphy button itself.

Thorough drainage is another important point in obtaining recoveries in these cases, and should never be overlooked, and the tubular drain, as mentioned by Dr. Brown, is undoubtedly the best we have for this class of cases.

Dr. William D. Haggard, Nashville.—I think the Fellows of the association are very fortunate in having Dr. Davis bring this topic up at this time. The profession is indebted to him for his original work in intestinal anastomosis done some years ago, be-

fore the Murphy button was perfected. Most of you know that the catgut mat or ring came along with the Senn bone plate, the potato plate, and other mechanical devices, and many of us used them with the elaborate forms of suture then in vogue. But when the Murphy button was given to the profession, Dr. Davis, in common with other experimenters, gave up his experimental work for a time, just as the McGraw ligature was laid aside, but has come into use in the particular scope in which it is indicated. It is fortunate that Dr. Davis is taking up this work again and is perfecting his horseshoe hinge for large convex openings in the larger viscera.

A point of importance in intestinal suturing is the use of Pagenstecher linen in lieu of silk. The advantages briefly are these: there is no capillarity to the linen; a piece of silk thread in a glass of water will show the capillarity of the silk, whereas no leakage takes place in the linen. Applied to the intestinal tract, if infection occurs when silk thread is used, it will travel by capillarity; whereas, in the linen suture the infection becomes localized and nature will take care of it. In all surgery, therefore, of election on the alimentary canal, such as gastroenterostomy and anastomosis in benign and malignant cases, the Pagenstecher linen suture is preferable to silk. It is quite strong and just as easily rendered sterile.

Dr. Kirchner referred to a case of multiple perforations. In the Nashville City Hospital one of my confrères, Dr. Fort, did a double anastomosis with two buttons, resecting six and fourteen inches respectively. Both buttons were passed on the twelfth day within seven hours of each other.

Dr. James F. W. Ross, Toronto.—I am very much pleased to have heard Dr. Davis's paper, and I am sure we are all glad to have heard the discussion of Dr. Brown. We are fortunate to have two men amongst us who have had such large experience in this line of work.

My own experience in intestinal resection does not come under the head of either stab or gunshot wounds particularly; but I would like to say a word or two with reference to the methods I have adopted in intestinal resection. On one occasion I did three resections and used three Murphy buttons on the one patient, but unfortunately the patient died. She survived for several days, but died for some reason not known to me, and I do not know whether the buttons would have obstructed one another in their passage down the bowel, or whether they would have passed as in the case reported by Dr. Haggard. It is a satisfaction to hear the Murphy button spoken of as it is to-day. It is not perfect. I have sometimes thought that if we could make a *papier maché* button, we would have something that would be lighter, strong enough to answer the purpose, and after a time would break down in the interior of the intestine. This would be better than metal.

Experiences are not always favorable in the use of the button, and I recall one case in which a man died from gangrene

of the right leg after the use of the Murphy button in a gastroenterostomy. Post-mortem examination revealed evidences that the femoral artery was blocked. He had, undoubtedly, endarteritis, and lost his life as a consequence. That is the only unfavorable case I have had in my own practice from the use of the button. One other case, a gentleman from whom I had resected several feet of intestine for tuberculous disease, closing several holes, had just recovered when he had a severe attack of pleuropneumonia. Pus formed in his pleural cavity; he was afterward operated upon by a prominent surgeon in San Francisco, who did an Estlander operation, but I received no report as to the button. Of course, a button may pass and not be found by the nurses in attendance.

A few days ago a woman came to my office from whom I had resected eight inches of the intestine during an operation for strangulated hernia, and I did the resection through the opening for the hernia operation. She made a splendid recovery, and is now in perfect health. In that case one thing happened that I have seen no mention of in the books—namely, the appearance of progressive gangrene of the bowel taking place beyond the point at which the resection was done. During the resection I examined the bowel and came to the conclusion that I was beyond the gangrenous area, and I began to make the resection well away from it. After the resection was completed and during the progress of the operation, I noticed a blackness extending over the bowel after the vessels were tied. I thought I had cut far enough away, but the gangrenous area kept increasing. It could not have been truly gangrenous, or she would not have recovered. The woman was in a bad condition, and I could not resect any more of the intestine. I gave an unfavorable prognosis to her husband; even told him that his wife did not have any chance whatever. I might have gone on resecting until I had taken out several feet of the intestine. However, she made a good recovery. We must not let such a condition as this interfere with giving a favorable prognosis in such cases. I cite this case so that you may not give up all hope, as I did, when you encounter similar cases. What this progressive darkening of the intestine was beyond the apparently healthy area, and what it was caused by, I do not know; it looked as though the bowel was becoming gangrenous farther on, away beyond the area supplied by the mesenteric vessels ligated.

As to the use of the Murphy button in connection with operations in which we have perhaps been tempted to use only the suture, I may say that my experience has been more favorable in the use of the Murphy button than it has with the suture. I did my last gastroenterostomy by the suture method, and the woman died in thirty-six hours, after vomiting, and tearing of stitches, or something of that kind. The Murphy button holds the parts better in position.

Just before leaving home to attend this meeting I resected the

cecum and a portion of the ileum for cancer, used the Murphy button, and the man did not have a bad symptom. He has every prospect of recovering. (Note.—While these pages were going through the press, he made an excellent recovery.)

I think, myself, that the future of intestinal surgery lies largely in the use of the button, or a similar device, but that we must make some endeavor to get rid of this metallic foreign body, and I think that will yet be accomplished by someone.

Dr. Humiston.—I would like to ask Dr. Ross why he thinks the Murphy button caused the gangrene in the case he reported?

Dr. Ross.—We thought the gangrene was due to direct pressure. We use a large button for gastroenterostomy. These buttons are heavy. We know that an ordinary Edebohls speculum hanging on the perineum may produce gangrene, and there are many other instances on record where slight pressure has produced gangrene. We were satisfied it was due to pressure.

Dr. Humiston.—May it not have been due to a septic thrombosis?

Dr. Ross.—We might have had such a tendency to sepsis, but this patient was seemingly well, and the operation was performed with every observance of aseptic technic. The man had no peritonitis after the operation. He was doing well for some time and this condition then appeared.

Another point I would mention, is the constant use of hot salt solution during the performance of all these operations. Instead of having the nurse rinse out the sponges and place them on the intestines, we should have clean towels and keep them hot by having warm water run over the surface of the towel instead of redipping the towels. In many instances where it becomes necessary to eviscerate, we can pull the intestines out through the incision as long as we keep them warm. It is the chilling of the surface of the intestines that produces the trouble.

Dr. John Young Brown, St. Louis.—I have never had the button retained in any case, though I have never used it in gastroenterostomy. In my cases I have never known the button to fail to pass. In one instance it was retained for some time, but an *x*-ray picture showed it, and finally the button was passed without any trouble.

Dr. Herman E. Hayd, Buffalo.—I have one patient now in whom the button has been retained for five months, and in another it was retained six weeks.

Dr. J. Henry Carstens, Detroit.—The Murphy button is a mechanical device which, it seems to me, we ought to get along without if we can. Sometimes it does not pass on account of its weight, or because the intestine becomes kinked and adherent, forming stricture through which it is difficult for the button to pass. That is one of the reasons why it does not pass.

Suture material was mentioned. It has been my practice to get along without any mechanical devices if I can possibly do so, and to suture the intestine. As to silk, if we sew up the intestine with silk it becomes infected. We have all had experience with infected silk, causing long-continued fistula after tying the pedicle in cases of pus tubes, in cases of ovariotomy, or any other kind of case where we have silk at the bottom. That takes place if you suture the intestine with silk, and as one of the speakers mentioned, he found silk inside of the intestine, partly within, and partly without, holding tight; so that I have come to the conclusion that it would be a great deal better not to sew up the intestine with silk, but with absorbable ligatures, such as catgut. But if you sew up the intestine with catgut it may not last long, especially if there is tension. Leakage may occur and we may lose the patient as the result. In a number of cases I have used fine catgut ligature, trying to bring the intestines as near together opposite each other as possible, making a running over-and-over suture, not pulling it tight, but trying to bring the two ends of the intestine together with catgut. It allows the mucous and muscular coats to become agglutinated. But if that is not enough, I amplify it by using a Czerny-Lembert suture of silk. I know that silk used in this way which amplifies the serous covering will not become infected, because it will not come in contact with the intestinal contents, and by that means I would expect to get good strong union, so that there will be no leakage. The silk will not become infected, and it will stay there forever, holding the tissues accurately together, making the intestine as strong as it ever was.

Dr. Dorsett.—No one has mentioned the Harrington ring. It has an advantage, in that it comes apart in small sections and passes off without producing stenosis or narrowing.

Dr. Henry C. Dalton, St. Louis, was asked to participate in the discussion. He said.—I cannot add very much to what has been said. There are two or three points in the discussion of gunshot wounds which occurred to me while the gentlemen were speaking, and the first one was that when we open the abdomen in a case in which there are multiple perforations, it is very important to find all of the perforations at once. I remember a case I operated on in which I closed three or four perforations, and in pulling the intestine further out, found that I had overlooked a perforation that was bleeding profusely. The patient was suffering already from acute anemia. It is important, therefore, to find all perforations at once, and close those that are bleeding.

Dr. Brown, in his remarks, emphasized the importance of making a median incision in these cases. Ordinarily speaking, I think that is correct; but if you know the direction in which the bullet goes, and it should strike two inches to the left of the median line and comes out in a direction which would naturally follow from its course, I see no reason for opening the abdomen in the median line. So, I think, if you make an incision in the right or

left linea semilunaris, you have a better control of the field and you can get more directly at the condition of affairs. One cannot always tell the direction of a bullet. I had a patient who came into the hospital after being shot in the popliteal space. He complained of severe pain in his belly. I asked him what position he was in when he was shot. He replied, "The fellow was after me; I stumbled and fell; he fired." And the bullet went through the popliteal space into the belly cavity. I found perforation of the cecum; I sewed it up a couple of hours after the injury, and the man had no further trouble. This case emphasizes the point I want to make—namely, that we never know the direction of the bullet. We must try to ascertain the position of the patient at the time of the shooting, and I see no reason why we should always in these cases follow the practice of making the incision in the median line, especially when the wound of entrance is far away from it and the ball shows that it passes in an opposite direction.

I fully endorse what Dr. Brown and the other gentlemen have said in other respects. I have enjoyed the paper and the discussion very much indeed.

Dr. Herman E. Hayd, Buffalo.—I read with a great deal of interest Dr. Brown's paper last year, and have listened with more interest to the discussion he has made, and I cannot but feel that it is a little unfortunate that Dr. Dalton should take up that phase of the subject again, for I think Dr. Brown has demonstrated in a very satisfactory manner that if we have a stab wound of the abdomen, we may go in at the site of the stab, but with a gunshot case the incision should be in the median line, because the probabilities are the intestines will be wounded at many points, as it is always uncertain where the bullet goes. Dr. Brown has also pointed out very clearly the facility with which he can examine the bowel from top to bottom by a central incision, closing it up, and then draining from below through a lower opening, and as a result of this line of practice he has had a splendid report of recoveries; therefore, it seems to me, that is the way to attack this class of cases.

Dr. William H. Humiston, Cleveland.—There is one point I wish to bring forward in connection with cases of gunshot wounds of the abdomen, where the injury is at all extensive and there is much shock, and the shock is usually increased by a comparatively long operation, and that is the use of saline injections (submammary) at the time the operation is begun. During an ordinary operation of, say, thirty minutes to an hour, we can inject from two to three quarts of hot salt solution under the breasts, and the patient will leave the table in a much better condition than he went on. In all my cases of abdominal surgery, in which there is evidence of weakness, where the pulse is feeble, I make it a routine, as I start the anesthetic, to begin the administration of saline under the breasts. In long standing cases of suppuration, where the outcome is in doubt, where there is extensive

breaking up of adhesions, abscesses to remove, you can take the patient off the table in from thirty minutes to an hour, in a better condition than she or he, as the case may be, went on.

Dr. Rufus B. Hall, Cincinnati.—I am going to speak of but one phase of the subject because it has been gone over so thoroughly, and if it were not for the remarks of some of the gentlemen in reference to the retention of the Murphy button, I do not believe I should have anything to say.

Dr. Davis has had a very large experience in experimental and practical surgical work. He ignores the spring in the Murphy button, and says that he obtains just as good results without the spring in the button, but that theoretically the spring is correct. Why? Because the constant pressure after the button is pressed together helps necrosis of this portion of bowel that is turned in over the edge of the button, which must become necrosed before the button can pass on through the intestine. The reason the button is retained in some cases is because this necrosis does not take place, and when the button does not pass the button-spring is not correct, or the button has not been thoroughly sent home, thoroughly pressed down when the intestine is dropped into the cavity. Therefore, necrosis does not take place and the button cannot pass along the intestinal canal.

I have used the Murphy button frequently; I do not know that I am any more careful than other surgeons, but there is one thing I always look after, and that is to send the button firmly home. The button-spring should be in good order, and a button ought not to be used a second time unless there is a new spring in it. I cannot conceive how it is possible for the button to be retained if it is of the proper size for bowel use, and if it has a spring that is properly made. I can conceive of the button remaining *in situ* if it is not thoroughly pressed down and hard enough to cause necrosis to take place from the original pressure. But the spring need not be pressed so hard, and yet necrosis will take place after a time. I consider that an important practical point. Theoretically, I am certain it is. Dr. Davis says that he gets good results with his button. I should be afraid that this button without a spring would not pass, for the reasons mentioned. There may be other reasons why the button does not pass in certain cases. I do not understand why it will not, if the spring is thoroughly adjusted.

I have enjoyed the paper of Dr. Davis very much, and the discussion following it. The profession at large is very much indebted to him for his original work.

Dr. H. W. Longyear, Detroit.—I do not wish to discuss the paper, but to speak of an observation I have made since this discussion has been going on, and that is, that all the gentlemen who have spoken who live north of Mason and Dixon's line have had little or no experience in the treatment of gunshot wounds of the abdomen. (Laughter.)

Dr. Davis (closing the discussion).—I am very grateful for the cordial reception of my report, and I appreciate very much the valuable and interesting discussion that has taken place on it. I wish to thank Dr. Brown especially for his extended remarks. I differ from him, however, in regard to some points. His recommendation to make a median incision in cases of gunshot wounds of the abdomen is wise. In stab wounds we can well afford to follow the wound because we can estimate somewhat the extent of the damage done. I recently had a case of stab wound of the chest where the diaphragm was punctured, and I thought the stomach was also injured. Notwithstanding that fact, I resected the ninth rib, closed the wound in the diaphragm with catgut sutures, turned the patient on his back, opened the abdomen, and only found a little blood, after which I closed the abdomen without drainage. The man recovered without any trouble. I have had a number of cases of stab wounds of the abdomen, and I usually enlarge the wound at its site.

As to the Murphy button, it is the most admirable mechanical device we have for intestinal anastomosis. It undoubtedly saves more time than any device we have had. However, I do not think the spring is absolutely necessary, and what my friend, Dr. Hall, said theoretically, I have not found to be so practically. If you clamp the button sufficiently tight, it will cut off all blood supply of the included portion which will slough away, leaving no diaphragm. If you fail to do so, the spring is not sufficient to cut off the blood supply, as I have demonstrated conclusively in my experiments on dogs.

I was surprised to hear Dr. Brown make the statement he did with reference to the through-and-through suture. I cannot put in tier sutures as rapidly as I can the through-and-through sutures, so, if I am hurried, I employ these sutures, and I must say I have never seen the escape of the abdominal viscera after putting in through-and-through sutures. These sutures are inserted about one-third of an inch apart. Dr. Brown must have put them in too far apart, and probably that was the cause of the trouble he experienced.

As to the use of gauze, I do not pack it into the abdomen as I do when a solid viscus is injured. I use a small gauze wick protected by rubber dam. For a long time I used a glass drainage tube in my cases, coached by my friend, Dr. Price, but I have discarded it in all instances, except in a few pus cases.

As to the use of morphine, I do not give it after section, if it can be avoided. My patient had received two doses of morphine before she reached the hospital, and it had to be given for pain after operation. She had an idiosyncrasy relating to all opiates and was nauseated severely.

Dr. Brown emphasized the necessity of operating on all these cases. I agree with him. They should be operated on as early as we can get them. We can never tell the range of the bullet. One may aim at a dog, but can never know where the bullet will end.

You may place a gun two inches to the left of the median line and fire, and wound the viscera to the right of the median line. It is better for the surgeon to go through the median line in operating for gunshot wounds of the abdomen.

As to the time of performing these operations, Dr. Parker, of New Orleans, fixed the time as immediate, intermediate and delayed operations, and these were respectively the first seven hours, fourteen hours, and after fourteen hours. We have found in our experimental work, in cases in which the abdominal viscera were injured (I am referring now to hollow viscera), in the small gut, we got very little or no injury of the serosa within seven hours, from infection. But if the colon was injured there would be beginning peritonitis within that period of time, as there was in the case I have reported in which there was injury of the mesenteric border of the transverse colon. There was a space as large as my hand where the feces escaped, and the endothelium had already been destroyed. Delay of a few more hours in this case, apart from the hemorrhage, would have rendered life hazardous. These patients should be operated upon as soon as we can get them, as we can never tell what a short delay may bring forth. They may have hemorrhage. We talk about shock and some of us say we should wait until it passes away. In a case of gunshot wound of the belly shock is usually from hemorrhage. This is, therefore, an argument in favor of operating on them as early as possible. After fourteen hours we have found that peritonitis will begin from the escape of intestinal contents from the small bowel; yet a few of these cases may be saved after three or four days have elapsed from the time of the receipt of the wound. It depends upon the size and character of the wound and the protection of the wound by omentum and other surrounding viscera. Sometimes the omentum will fall over it and some of the cases will get well without surgical interference.

Dr. Ross has mentioned a case of gangrene of the gut from cutting off of blood supply. This is an important point to remember, that in ligating the mesenteric vessels we should do so as close to the bowel as possible. If we ligate low down and put the gut back too quickly, we are liable to have gangrene. If we ligate at the base of the vessel, we must resect that part of the bowel from which we have cut off the blood supply. That is the reason we fail in so many of our closures of the mesentery. We had eight cuts on the mesenteric border in this case that I have reported. I doubt, if I had closed any one of them, I would have gotten union; the only reason I obtained union in the two colon perforations was that I was able to slit up the serosa, and did not destroy the mesenteric blood supply.

As to the suture material to be used in these cases, I never use catgut in my intestinal work. It is too risky. Silk is the most reliable, and I have never encountered any difficulty from its use.

SOME CLINICAL REASONS FOR ADVISING EARLY OPERATIONS FOR FIBROID TUMORS OF THE UTERUS.

By RUFUS B. HALL, M.D.,
CINCINNATI.

When a patient suffering from fibroid tumor of the uterus consults her physician, he is confronted by the very important question as to the best advice he shall give her. There are three courses to be pursued—namely, medical treatment, an early operation, or a later operation. These questions must be decided by the physician in charge, and the advice that is for the best interest of the patient is a debatable question at the present writing.

It has been the custom of the profession for years to advise women suffering from fibroid tumors to delay operative intervention just as long as they can be made comfortable, or their condition made tolerable by the administration of drugs, with rest in bed or confinement to their rooms during their menstrual periods. That this advice was wise and judicious ten or fifteen years ago, when the mortality following the operation for removal of fibroids was 25 to 35 per cent., everyone must grant. But we have also learned that in delay certain complications will develop in a large percentage of cases, and where these complications arise the mortality following the operation must always be very high. The present low mortality—not more than 2 or 3 per cent.—following operation in uncomplicated cases, should encourage the physician to advise early operation before complications arise in the pelvis or abdomen, which cause a high mortality when the operation becomes imperative.

The questions naturally arise, after we dispose of the medical treatment, which will not be discussed in this paper:

(a) Which cases should we advise not to be operated?

(b) In which cases should we advise late operations?

(c) In which cases should we advise early operations?

It will be necessary to discuss at some length the clinical history of these patients, in order to form a correct conclusion.

(a) If a patient between 35 and 38 years of age, suffering from a fibroid tumor of the uterus, the tumor and uterus combined making a mass not larger than a cocoanut, has no symptoms other than profuse menorrhagia, the whole period not extending over five or six days, and she is free from pain except at her menstrual periods, it would be wise and judicious not to interfere surgically. But this patient, during her entire menstrual life, should be considered an invalid by her physician, and should report to him at once if her symptoms become aggravated.

(b) If she suffers pain in one or both iliac regions at other times than at her menstrual periods, the cause of the pain should be discovered at once and corrected. On the contrary, if her menstrual period is prolonged to ten or twelve days, the loss of blood amounting almost to a hemorrhage, and this hemorrhage cannot be controlled or mitigated by the usual internal medication and rest during the period, the advisability of an operation should be considered.

(c) Prolonged and severe uterine hemorrhage has not been considered a sufficient reason for advising an operation. A patient suffering from a tumor as large or larger than a cocoanut, who has profuse bleeding at each menstrual period and the period is prolonged for eight, ten or fifteen days, as it frequently is, is in considerable danger. It has been my experience that a large majority of these patients in which the hemorrhage cannot be controlled by medicinal remedies in a few weeks, come to operation sooner or later. They can frequently stand off the operation two or three years, or in some instances longer, but the anemia is profound, and if some complication arises in the tumor, ovaries or tubes, making an immediate operation necessary, they are in the worst possible condition for it. The chances for a successful operation are greatly diminished. Therefore, when the hemorrhage cannot be controlled within a few months, these patients should be advised to have the operation made before the anemia becomes pronounced. These symptoms, however, are not of so much importance as others that I shall refer to, but, if permitted to continue for many months, they cause profound anemia, lowered vitality, and a high mortality following operation.

There is one condition, however, that has not been much discussed in medical journals or in textbooks. It is not infrequently met with, and has not, in my judgment, been sufficiently emphasized as a dangerous complication caused by delay in advising operations in many of these cases. I refer to hematoma of the

ovary. This condition is seen in those women in whom the tumor has existed for many years. One or both ovaries, usually but one, become imprisoned below the tumor in the pelvis and a hematoma develops. Why a hematoma is more prone to develop in an imprisoned ovary is a question that I am unable to answer, but in my experience this is a condition that frequently exists. In every case where a hematoma exists the patient gives a history of suffering more or less pain in the pelvis, abdomen and back constantly between her menstrual periods, as well as during the molimen. The patient is also subject to slight attacks of inflammation in her pelvis and abdomen, and is frequently compelled to remain quiet for a few days at irregular intervals.

In examining these patients the fibroid tumor is found occupying the pelvis, and it is fixed so that it cannot be pushed or lifted out of the cavity. Below the tumor, and on one side of it, can be felt a distinct mass somewhat softer than the fibroid itself. This mass will vary in size from that of an orange to twice that size, or even larger. If the case is one that has deferred operation as long as she could tolerate her existence, the clinical thermometer will show a rise of temperature of from one to three degrees. When the patient comes to operation the tumor will be found fixed in the pelvis by adhesions, and below it will be found the imprisoned ovary, containing from half an ounce to an ounce or more of thick, dark blood resembling tar in color and consistency. It has been impossible, in my experience, to separate the tumor and the ovary in these cases without rupturing the hematoma and getting this fluid on the fingers and over the field of operation, because in liberating the tumor the wall of the sac is so friable that it readily breaks down. The sac is, of course, adherent to the pelvic floor and to the tumor.

I regard hematoma, when co-existing with fibroid tumors, as the gravest complication that we have to deal with in the management of the late cases. In spite of the greatest care possible to prevent infection, this fluid being very virulent, almost all such cases develop septic peritonitis after the operation, and not a few of the patients die from it within two or three days. I regard this condition, following operation for fibroid tumors, as very much more dangerous than those cases complicated by a suppurating tube. In the large majority of patients suffering from suppurating tubes the infection takes place after the tumor has attained a large size and the suppurating tube is above the tumor, so that it can

be reached by the operator and removed without rupture, thus avoiding contamination of the field of operation.

My records show that only one patient in seven operated upon for fibroid tumors, where pus tubes were present, developed peritonitis after operation; while five in every six of those operated upon in which hematoma of the ovary existed suffered from peritonitis following the operation for removal of the tumor. While every patient who develops peritonitis after these operations does not die, it is a very dangerous complication, one that must always be dreaded by the operator, and one that often terminates fatally. After a hematoma has become infected, the patient is compelled to be operated upon for relief. The fibroid tumor itself may not be larger than a cocoanut, yet the patient suffers from repeated attacks of pelvic inflammation, with pain in the pelvis and abdomen in the intervals as well as during the attacks. On account of the small size of the tumor many of these patients have been advised not to be operated upon, their physician hoping to carry them over the menopause, with the belief that the symptoms would all become quiescent at that time and the patient would be saved the dangers of an operation. If these patients suffering from hematoma of the ovary had been subjected to operation when the ovary was first imprisoned in the pelvic cavity—when they commenced to complain of pain between their menstrual periods—instead of delaying it for two or three years, they could have been saved the extra risk of peritonitis following the operation.

It may not be possible clinically to differentiate between hematoma of the ovary and a suppurating tube from the physical conditions at the examination, but if we can exclude gonorrheal infection we can, as a rule, exclude a suppurating tube. If this can be excluded, and the patient is having recurrent attacks of pelvic inflammation and has a mass beneath her fibroid, we should always suspect a hematoma of the ovary, with infection of its contents. The infection of the hematoma is probably through the walls of the rectum, and caused by the colon bacillus. The writer can recall a number of cases in which the hematoma was below the tumor and adherent to the rectum. At the time of operation the odor from the contents of the hematoma was not unlike that from an ischiorectal abscess. It is in these cases that the greatest danger from infection exists.

The well-recognized fact that small fibroid tumors of the uterus frequently become quiescent after the menopause, that many of them diminish in size, and the fact that a high mortality formerly

attended the removal of these tumors, had a powerful influence in moulding the professional opinion toward advising delay and counseling against operation.

The large majority of general practitioners to-day are inclined to advise their patients to delay operation for fibroid tumors as long as they can. The professional opinion has not changed materially in this respect in the past fifteen or twenty years. The present low mortality following operation, if made before complications arise, does not justify this opinion.

Another danger that is not sufficiently emphasized is that of secondary changes in the tumor itself. Malignant disease usually occurs after the menopause, but just how long after I am unable to say. While the usual period is three or four years after cessation of menstruation, I can recall a number of cases in which malignant disease supervened in these tumors during the menstrual life, and a small number in which it developed many years after the menopause. I have notes of one woman suffering from a fibroid tumor about the size of a cocoanut, who ceased to menstruate at 47 and all symptoms attributed to the tumor disappeared. I removed the tumor when she was 66 years old, after it had been causing trouble for six months, and it had malignant disease well advanced in it.

Another patient, who ceased to menstruate at 45 and had no serious trouble until five or six months before her operation, had malignant degeneration in her fibroid and was operated upon by me at 56. Still another patient, the wife of a physician, ceased to menstruate at 49. She had been the subject of a fibroid tumor since the age of 39 years. After her menopause the tumor remained about the size of a large cocoanut, which bothered her very little until she was 69 years of age, when it became troublesome and increased in size. It was removed within five or six months afterward, when it was found that malignant degeneration had taken place.

The usual history of malignant degeneration is, that within two or three years after menstruation has ceased the tumor, having been quiescent all this time, suddenly commences to increase in size and causes disturbance from pressure symptoms and pain. Within a few months from the time she commences to complain, the patient suffers so much that she demands relief. At the time of the operation malignant disease is manifest.

My experience in removing these malignant fibroid tumors has been that, within a year or two after the operation for removal of

the tumor, the patient has a recurrence of malignant disease in the pelvis and abdomen and succumbs within a few months. The fact of a recurrence is not difficult to explain, because in most of these cases it is plainly evident at the time of the operation that all of the malignant disease cannot be removed. The results regarding the recurrence after this operation are such a contrast to that of removal of the uterus for cancer of the cervix that it makes a very gloomy picture. If the profession at large thoroughly realized that no patient who is the subject of a fibroid tumor of the uterus is thoroughly safe when menstruation ceases, even if the tumor does become quiescent, it would be a great advance in the right direction. It would have a good influence in moulding the medical opinion and in protecting these patients from malignant disease, and would add many years to the sum total of their existence. I believe the advice given these patients so often—that they will be all right when the menopause is established—is dangerous. The correct advice to give them is that no woman suffering from a fibroid tumor of the uterus is thoroughly safe at any time in her life as long as she carries the tumor. If this were adopted by the profession, it would be a great boon in safeguarding their interests. We must first realize our dangers, in order to know how to guard against them.

There are other clinical reasons, such as inconvenience from large size, pressure symptoms, bladder irritability, the liability of pregnancy, which should it occur may greatly complicate the case; intestinal obstruction and, in many cases, long years of invalidism. These conditions need only be mentioned here. The two principal reasons which induced me to write this short paper are first, the great danger in hematoma of the ovary; and second, the possibility of malignant degeneration of the tumor. Even where the fibroid tumor is not larger than a cocoanut, if the tumor becomes fixed in the pelvis the danger of hematoma of the ovary is very great, and it is usually the particular complication that compels these patients to seek an operation for relief. As stated before, the dangers following an operation of this character are very great, and these dangers should be avoided by advising patients to submit to an operation early, before the formation of a hematoma.

Just as soon as the patient commences to suffer acute pain at other times than her menstrual periods, an operation should not only be advised, but urged, for there is usually something wrong in the tumor itself, or in the viscera adjacent to the tumor, that

will in the end necessitate an operation under unfavorable conditions or circumstances. It is not just to the patient to postpone an operation until a hematoma has developed and the dangers from an operation have been increased to a mortality of 25 to 35 per cent., as against 2 or 3 per cent. when operation is made before that occurs.

While secondary changes are not so frequent as the former complication, they should always be kept in mind. After a woman has passed the menopause still carrying her tumor, if any symptoms of inconvenience arise she should be advised and urged to have an operation at once. By this means we may be able to remove the uterus early enough to prevent recurrence. Just as long as the profession advises these patients to carry their tumors as long as their condition can be made tolerable, we will witness patients coming for operations after cancer is so far advanced that an operation for removal of the tumor can only serve as a temporary respite.

SHALL WE REMOVE ALL FIBROMATA OF THE UTERUS ON DIAGNOSIS?

By THOMAS B. EASTMAN, M.D.,
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In the minds of many of those present there may be no question as to the advisability of the removal, upon diagnosis, of the uterine fibromyomas. However, notwithstanding the fact that the general trend of medical journal literature is in the direction of advising removal in all such growths with rare exceptions, a perusal of standard American authors discloses the fact that a majority of them, after outlining with considerable detail the various non-radical methods, hold that the mere existence of such a tumor should not be considered as a necessary indication for its removal. So far as medical treatment and those surgical procedures which have in view the avoidance of hysterectomy are concerned, they may be dismissed as of such small value as to merit little consideration. The writer's observation and experience lead him to the belief that they only serve to palliate while the day for successful surgical treatment passes by.

Electrical treatment, after numerous trials, he has abandoned. Ligation of the uterine arteries, while still practised by a limited few, has not given results definite and permanent enough to warrant its continuance. Atrophy may occasionally occur during pregnancy. They may cease to give trouble after the menopause, if the patient is so fortunate as to weather the storm incident to this change. The treatment of procrastination, awaiting the menopause, is to be condemned.

To quote J. Bland Sutton[1], surely there is nothing in the whole range of surgery more ironical than a woman spending twenty, or even thirty, years of her life as a chronic invalid on account of a uterine fibroid, in the expectation that at the menopause she will be restored to health and begin a new life, and then to realize that, far from this thing being fulfilled, the fibroid becomes necrotic, extruded, or septic, and places her life in the gravest peril, and that she may die in spite of surgical intervention.

Much has recently been written concerning sarcomatous degeneration of fibroids, and the general consensus of opinion is that at least 5 per cent. of fibroid tumors undergo sarcomatous degeneration, to say nothing of those fibroids which become secondarily involved, other parts of the uterus being infected with carcinoma. Indeed, sarcomatous degeneration of these tumors seems to occur in cases where the fibroid has lain dormant for some time, and Herman[2] reports a case in which a bleeding fibroid had dwindled and ceased to bleed for years after oöphorectomy and then began to grow rapidly, but no mention is made of any microscopical or post-mortem examination.[3]

In this connection, Findley[4] says: "When a fibromyoma of the uterus undergoes malignant changes it takes on rapid growth, becomes softer in consistency, and metastatic growths may arise in the lungs and elsewhere." When a fibroid takes on rapid growth, and particularly if near the time of the menopause, no time should be lost in removing the growth. Then, it having been shown by such men as Cullen, Pick, and Gerhard that carcinomatous degeneration does take place in these growths, and by some the percentage being estimated as high as 5 per cent., what is the justification in awaiting the development of malignancy before surgical intervention is had?

That necrotic and infectious changes arise in these growths, and that once having arisen they diminish the chances of recovery, is readily admitted. In one case under my observation a fatal infection resulted from the use of an unclean electrode used for the purpose of removing a large submucous fibroid. In another case gangrene set in, with fatal results, following ligation of the uterine artery. In another case I removed a pedunculated submucous fibroid which had given absolutely no symptoms until gangrene set in, and to good fortune must be credited a successful result in this case. Moreover, John S. Fairbairn[5] finds the tumors most frequently affected by this fleshy necrobiotic change are the interstitial fibroids of medium size. In spite of their blood-stained appearance, they are not engorged with blood, and hemorrhage and vascular congestion are not the marked features in these tumors.

As long ago as 1884, Hoffmeyer[6] called attention to the frequency of cardiac disease in cases of abdominal tumor, and especially with fibromata of large size. He collected a series of eighteen cases in which sudden death was caused by cardiac failure, provoked by the presence of large abdominal tumors.

Fehling,[7] in a series of fourteen hysterectomies, studied all the patients from this point of view, and found in four of them manifest signs of cardiac alteration. Kessler[8] records the removal by laparotomy from a woman, fifty-four years of age, of a fibromyoma of the uterus weighing about sixty pounds. Convalescence progressed well until the seventh day, when the patient died suddenly while sitting up in bed. The autopsy showed fibroid changes in the myocardium of the auricle and left ventricle. Kessler is inclined to attribute this cardiac lesion to circulatory obstruction by the tumor.

In an article entitled "Complications and Degenerations of Fibroid Tumors of the Uterus,"[9] Charles P. Noble gives some interesting facts. Out of a series of 218 cases operated upon for fibromyoma of the uterus complications were encountered in 126, and these complicated cases he divided into three groups: first, those which would lead to a fatal result, of which there were 71; 32 of the fatal degenerations or complications being of the uterus or tumor, and 39 of the appendages. Second, of complications threatening the life of the patient, of which there were 25. Third, conditions leading to a more or less permanent invalidism of the patient, of which there were 30. Martin, quoted by Noble, reports 205 cases in which there were complications in 57, most of which would have eventually proven fatal.

In a later paper he reports additional cases, with an increasing proportion of complications. In *American Gynecology,* April, 1903, he concludes a paper as follows: "It was estimated that because of the degenerations present, 16 per cent. of the patients would have died without operation, and that, because of the complications present, 18 per cent. would have died without operation, or a total of 34 per cent. In addition to this, a certain number of the patients would have died from intercurrent disease contracted because of the reduced state of health of the patient; in other words, that more than one-third of the women having fibroid tumors which had come under my observation would have died had they not been submitted to operation."

In the 117 cases upon which the writer has operated for fibroid tumor of the uterus, complications which bade fair to result eventually in death were encountered in 43 cases. Hydrosalpinx, either unilateral or bilateral, five times; suppurating dermoid cyst, three times; sarcoma, once; parovarian cyst, once; necrosis of tumor, eight times; cystic degeneration of ovaries, three times; ovarian cyst, four times; intraligamentous development of fibroid,

three times; pyosalpinx or salpingitis, seven times; hematosalpinx, once; cystic degeneration of the tumor, once; myxomatous degeneration, three times; adenocarcinoma of body, twice. Among the more prominent complications, appendicitis was encountered once. In addition to the complications inherent in the uterus and its adnexæ proper, we have those arising from the pressure of the mass upon the bladder, rectum, ureters, and the persistent anemia resulting from prolonged hemorrhages.

In the writer's forty-three complicated cases, as well as in those of other writers on this subject, it is a significant fact that those complications which were inherent in the tumor, and which presaged the most certainly fatal results, were those of such character as to preclude a positive knowledge, or oftentimes even a suspicion, of their existence prior to operation, or even a microscopical examination.

This, then, is the arraignment of the uterine fibromyoma and, in the mind of the writer, justifies their removal in all cases, except in so few as to scarcely merit attention. Shall we, then, not remove all fibromata upon diagnosis, not for the harm they are now doing, but against the harm that they may do in the future? As far as the danger is concerned, the removal of a fibroma is attended with as little hazard as the average abdominal section, and I am not unmindful that the removal of the uterus from a comparatively young woman is not a thing to be lightly considered.

The results obtained by various operators warrant us in classing it among the safe operations, the mortality being in the hands of skilled men scarcely more than 5 per cent.—a mortality certainly much less than would result from the policy of procrastination which advocates delay until the forces of death, plus those of the operation, outweigh those of surgical intervention. There is nothing so innocent as an innocent fibroid, and nothing so treacherous, and if there is any debatable ground at all, it as to the removal of the so-called symptomless tumor.

But when we consider the dangerous conditions into which this innocent fibroid may quickly change itself, and the ease and safety to the patient with which this innocent fibroid may be removed, the writer believes that the deduction is evident that we should remove all fibroid tumors of the uterus upon diagnosis.

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DISCUSSION ON THE PAPERS OF DRS. HALL AND EASTMAN.

Dr. William J. Asdale, Pittsburg.—I would offer the criticism that neither essayist mentioned a class of cases in which, in my opinion, operation should be mainly interdicted. I refer to those conditions in which there is diabetes as a complication. In this class of cases the results are so unfortunate as to almost exclude the idea of operating, whether the tumor be small or large. At least, that has been my experience.

Dr. J. Henry Carstens, Detroit.—These two papers have been written very much on the same lines of thought, and they simply show that great minds run in the same channels, and come to nearly the same conclusions. I am very glad, indeed, that this subject has been brought up for the purpose of emphasizing the necessity of operating on these cases. It is the same old fight over again. You very well remember the battles we have had over appendicitis, pus tubes, and those we are now having with gallstones tells the same old story of conservatism versus progress. There are some men in our profession who are conservative; there are others who are more than that—they are fossils. There is no use talking to them. Of course, men can be so enthusiastic as to go to extremes and be perfectly wild about certain things, but it is supposed that the men who do this kind of work use some kind of judgment.

I go a little further than Dr. Hall and say that when we have to deal with a fibroid tumor of the uterus, that tumor should be removed just as though it were a diseased appendix. I do not see any reasonable excuse for not operating on it. I tell the woman when she has a fibroid tumor of the uterus it must come out, or she will never be well; that she will never be out of danger, and she will never be safe until it is removed. If she does not want it taken out to-day she will want it removed next month, in two or three months, a year, or five years, but some time or other it has to come out. The longer operation

is delayed, the greater the danger attending it usually, while it is comparatively safe to remove such tumors as soon as the diagnosis is made. What do we operate for? Do we operate for the purpose of saving a patient's life? Do you ever hear of an orthopedic surgeon operating for the purpose of saving a patient's life? No, he does not, but operates because the patient is crippled. He wants to make the patient well; he wants the patient to have straight limbs. Some of you may say that he does wrong in endangering the patient's life, perhaps, by operating. No, he does what is perfectly right.

We do the same thing. We take out a tumor of the uterus not because it endangers the life of the patient, but because the patient is more or less an invalid as long as she has that tumor. If she is not a physical invalid she is a psychic one. She has that tumor in her mind all the time; she feels uncomfortable about it; she thinks of it daytimes and dreams of it at night. The tumor is, more or less, in her mind all the time, whether she is in danger or not. Whether she is in church or at a theatre or a party, she thinks about this tumor, and knows that some day she will have to undergo an operation for its removal. She leads a miserable life. To relieve her mental distress as well as physical condition, it is necessary to remove the tumor. There is danger of hemorrhage from the tumor, and we all know what that means. Fatty degeneration of the heart is a common result of long-continued fibroid tumors. These things should be considered.

The various complications mentioned by Dr. Hall and Dr. Eastman show it is very essential that these tumors should be removed, otherwise the women are not safe. If we have a small fibroid tumor of the uterus that causes a little pain, if it is situated anteriorly, it is easy to strip off the bladder per vaginam in front, enucleate the fibroid, and sew up the incision. If it is behind, it is easy to open the culdesac, enucleate the tumor, put in a few stitches, and the woman does all right. If it is situated at the fundus, you can open the culdesac and remove the tumor. If the woman is at the menopause and has multiple fibroid tumors, it is easy to do a vaginal hysterectomy, which is attended with very little danger. This operation is not attended with one-half the danger that it is when we have to deal with the complications referred to by Dr. Hall.

Some twenty-six years ago a woman with a fibroid tumor came to the dispensary in which I was serving. I said to her that the tumor ought to be removed. She laughed at it, and said she would not have any such a thing done. I could not blame the poor woman, because she knew how many women died in those days from operations for the removal of these tumors. She kept jogging along until the tumor grew larger and larger, and the menopause had been established. Calcareous degeneration had taken place; the tumor became very heavy, was burdensome, and she was willing to do anything. There was more than one

tumor in this case. I removed the tumors, and each one was the size of a cocoanut. There were six or eight quite large ones. Each one was a solid mass of calcareous degeneration. They were like paving stones, and one had to take an ax to chop them in two. I have the specimens now.

A week ago I was called out to one of the interior towns of Michigan to be prepared to operate for a fibroid tumor of the uterus. I went and found a woman, sixty-eight years of age, who had had a fibroid tumor for thirty-five years. She never wanted to have it removed. She had raised a large family of children. I examined her carefully and said to the family physician: "Doctor, I cannot operate on this case; it is beyond all help; this tumor has undergone sarcomatous degeneration, and I can feel nodules on the liver and around the intestines." Ascites, too, was present. I said to him that this woman ought to have been operated on long ago, and that I could not operate on her now.

We see these cases repeatedly, with the same old story of procrastination, of invalidism, of mental distress, and for that reason I have long since advocated that a fibroid tumor like a diseased appendix, should come out as soon as the diagnosis is made. But this does not mean that I am reckless. I may not do the operation to-morrow. I take my time. The patient may have to be built up, and I may have to do the operation in two or three months, but the sooner it is done, the better.

Dr. H. W. Longyear, Detroit.—It seems to me that Dr. Hall and Dr. Eastman are radically different in their views on this subject. Dr. Hall takes a more conservative view, while Dr. Eastman believes that every fibroid tumor should be removed as soon as the diagnosis is made. I agree with Dr. Hall in his advice in regard to this matter. I think that every fibroid tumor should not be removed as soon as the diagnosis is made, unless there are certain reasons for it, such as those that were given, like pain or hemorrhage. If neither of these symptoms is present and the tumor is small, I have not the slightest hesitation in telling the patient that she need not be in a hurry in having it removed. But sometimes the tumor must be taken out, and in case any of the symptoms arise that Dr. Hall has mentioned, the tumor should be removed.

I have a number of women under observation just in that condition; there is not a symptom in either case. It is true they know they have a tumor, because they have been examined and told so. I have no hesitation in allowing such women to go on until the presence of the tumor gives rise to the development of symptoms. But as soon as either of the symptoms mentioned exists, I would advise the removal of the tumor. I removed a tumor of this kind last spring. I had the woman under observation for seven years. When she first came to me she said: "I have two little children; I am their only guardian, and it is very important that I should supervise the bringing up of these

children as long as possible. I want you to give me your advice bearing that in mind." She did not have any symptoms pointing to the existence of a tumor; her menstruation was regular and normal in every way. She had no pain. The tumor was still in the pelvis, entirely movable. I kept her under observation for seven years. The menopause apparently began a few months ago, two months before I removed the tumor, and the month before I did the operation she had some hemorrhage; then I told her she had better have the tumor removed. Both children were then well grown. I removed the tumor, and she is now well. The tumor had begun to soften. I had it examined, and there was no sarcomatous degeneration in it. It was simply a big edematous myoma. I believe such a course is proper, and is good surgery. It was more human than to insist upon immediate operation.

Let me cite another case. A woman came to me about a year ago from upper Michigan. She was a splendid, handsome looking woman, in perfect health, with red cheeks, red lips, and the mother of two young children. Her physician there discovered that she had a tumor or a little lump in front. He sent her to me for examination. I found she had a small fibroid, not as large as a cocoanut, but it was apparently intraligamentous on the right side. She did not have a symptom. Menstruation was normal, and there was no pain whatever. She would not have known there was anything the matter with her if she had not been told. I said to her that this tumor would have to come out some time, but that I did not see that there was any immediate hurry for operation. I said it was growing in a position where it would give trouble sooner or later. While she did not have a particle of trouble then, I said she might have hemorrhage or pain later, and that she should come and see me. She said she was willing to have an operation, but wanted to see her children first. Two weeks after this I saw the brother-in-law of this woman at the hospital, and as his family were patients of mine, I said to him, "What are you doing here?" He replied, "My sister-in-law who came to see you was operated upon and she is now dying." The woman was operated on, I have no doubt, in the best manner possible, but she died at the end of the ninth or tenth day. This and other cases illustrate that the removal of these tumors is not always so simple and free from danger as they would seem; I would rather let a woman live for a while, carrying a benign tumor causing no symptoms, and only interfere when symptoms indicate the necessity for the operation. Thus my conscience is clear, and I believe the practice is good surgery.

Dr. D. Tod Gilliam, Columbus.—I have always had the reputation of being conservative with regard to operations for fibroid tumors of the uterus, but I must admit that my views have undergone some changes in the last few years. I have not, however, changed to anything like the extent Dr. Eastman advocates

—that is, to operate on every case of fibroid that happens to cross my path. Some years ago I read a paper before the American Medical Association, at Columbus, in which I cited illustrative cases of the baneful effects of radicalism in dealing with the uterine fibroid. Here were women, young, strong and in the prime of life with dependent children and doting husbands, who went to the operating table and thence to the grave just because some surgeon had found a small fibroid of the uterus and frightened the patient into having it removed. Who may say that either of these cases would have ever lost health or life by reason of their fibroids? Now such cases ought to make us hesitate. We ought not to be so quick to operate. There is a mortality attending the operation. It has been put at two or three per cent. I hardly think that is a correct statement of the facts. While the mortality may be only two or three per cent. under the most favorable circumstances, I think, taking cases as they come, operations on them will be attended with a mortality of from five to ten per cent. I include in this mortality rate the complicated as well as the simpler cases.

Dr. Hall.—I want to correct Dr. Gilliam's statement. I said two or three per cent. in uncomplicated cases, that in such the mortality ought not to be higher than that.

Dr. Gilliam.—I accept that, but the average percentage will be greater than that. There is something more to be considered than the woman or her family ties, and these alone are grave matters to be considered. It is not only the life of the individual, but woman is here for a purpose. She is here to carry out the scriptural injunction which says: "Be fruitful, multiply and replenish the earth." I am a Roosevelt man on that subject and would be even if I lived in Texas. Women are here for that purpose and it is a grand purpose and looms above the individual, for she is but one while it is possible she may enrich the world by a half score.

We must remember, too, that a great many women bear children if they have fibroid tumors; especially does this apply to women in whom the tumors are not conspicuous either by their size or the symptoms they give rise to. Such are the cases that are under the ban of the essayist. Again, we ought to consider the motherhood of these women and the possibility of taking them from their families who are so dependent on them. I have in mind a woman who applied to me some years ago. She had a fibroid tumor of the uterus. Surgeons had told her—so she said—that she would not live six months unless this fibroid was removed. It was not giving her physical trouble—the only trouble was her mental anxiety. I quieted her fears. She afterward had several children. She was, as Dr. Longyear said of his case, the only guardian of those children. They are now grown up, educated and self-reliant, so that if necessary they can take care of themselves. The tumor has developed and is

giving her trouble. I told her a short time ago that if she wanted an operation done now I would do it for her. The times are ripe and I could operate with a clear conscience.

As regards statistics, we all know how easy it is to be misled by even those we gather ourselves, although we may gather them with the greatest care. According to Dr. Eastman's paper all of the women with fibroid tumors of the uterus will have troubles, sooner or later, which if unoperated will eventually terminate fatally. To draw conclusions from statistics that are fairly accurate we should ascertain how many such women actually do die from troubles incident to uterine fibroids. It is a hazardous assertion for a man to make when he says this patient is going to die of this malady and another of that! How many of us are willing to risk our opinions on a case of blood poisoning, heart disease or any of the non-malignant ailments that flesh is heir to. I don't believe in prognostications of this kind. Let us go back to the time when we did not do these operations. How many cases of uterine fibroid did we see die of the tumor, or from the traceable effects of it?

I have been watching these cases for a great many years and I can tell you that I have seen but a single case that died directly from the effects of a fibroid. Taking this as a basis, I think it would be a liberal estimate to say that not more than two or three per cent. of the women who have been let alone with fibroids, have died as the result of the presence of these tumors directly or indirectly. What then is the conclusion of the whole matter? We do not save life by our operations, "but it is not all of life to live." Such patients often lead lives of invalidism and are nightmares to themselves and those around them. It is right and proper that they should be relieved of this living death, and I glory in the man who is willing to do it. I believe that Dr. Hall has hit the nail squarely on the head. He is progressive, he is advancing. If I remember correctly, some time ago Dr. Hall favored operating on every case of fibroid tumor.

What would be the result of this wholesale and indiscriminate operating on uterine fibroids? According to some statistics about one-third of the women have them. I think it will be conceded that we have several cases of diseased appendages requiring removal, to one case of fibroid tumor of the uterus as it now stands. Unsex the thirty-three per cent. of the women with uterine fibroids; now unsex the women with diseased appendages—count out the sterile, and where is your population to come from? I was in Cincinnati some time ago and they were discussing operations for the removal of gallstones. One doctor said he had investigated the subject carefully and found that all gallstones had a silver or gold nucleus, and as corroborative evidence cited the fact that one of the pay hospitals with which he was connected had been having a large number of gallstone operations every year, but that when they turned it into a charitable institution there was only one operation in the succeeding year,

and the patient was a miser. Now this does not apply to this body, nor to either of the essayists whom we all know to be thoroughly conscientious, but if we go on at this reckless rate, I fear sinister motives will be imputed to us by the laity.

Dr. E. Gustav Zinke, Cincinnati.—I agree with everything Dr. Hall has said. I would agree with what Dr. Eastman has said except in one particular. If I could say to the patient who presents herself with a fibroid tumor: "I am sure your life can be saved by making a hysterectomy," I would advise and insist upon an immediate operation. But this we cannot do. As there is in the operation a certain risk in all cases, and as many of these women live a comfortable and even useful life, we can well afford to wait until threatening symptoms appear. I have had under observation five cases for the last two years. In every one I have refused to operate up to this time, simply for the reason that they are not subject to any inconvenience on account of the tumor. Hemorrhage, pain and rapid growth are absent in every one of them, and as long as there is no hemorrhage, pain and evidence of growth, just so long no effort at extirpation shall be made.

I think it is well for us not to operate unless there is a good reason for it. That has been my guide in all these cases. By waiting I do not expose these patients to any unnecessary danger whatever. The moment hemorrhage occurs, and increase of growth and pain manifest themselves then, certainly, the very best reasons for an operation exist. If there are no symptoms of pain, hemorrhage, nor distinct evidence of growth, we are not justified in operating unless the patient herself is ready to submit and brave the danger. If, as stated in the beginning, we could positively assure the patient that her life would not be sacrificed by the operation, I should say go ahead and operate at once in every case. There is a certain mortality attending hysterectomy for fibromata; collectively it amounts to not less than ten per cent.

Dr. Hekman E. Hayd, Buffalo.—This subject of fibroid tumors is very interesting because it is so full of surprises. I did not realize, until I listened to Dr. Hall's paper this morning (and whatever Dr. Hall says I usually put a good deal of faith in), that hematomas of the ovary were such a frequent association of fibroid tumors, and that they necessarily presented a fatal complication. I cannot see why a hematoma of the ovary, when associated with a fibroid tumor, should be necessarily more dangerous than a hematoma under any other circumstances. However, I am going to bear that in mind. If it was such a frequent complication, it would not be possible for so many of us who have read papers on this subject, to present a series of cases, as I did three years ago, of thirteen with one death, and I could add now fifteen more without a death. As I say, if it was such a frequent association, we could not present such a series of successful operations.

It is a fortunate thing for humanity and for this association that we really do not disagree very much in regard to the treatment of fibroid tumors. I take it, there is not a man in this association who puts any confidence in any other remedy than operation. Years ago I was an enthusiast on electricity in the treatment of fibroid tumors of the uterus. I was one of Apostoli's students. I used electricity a great deal. I have discarded it. I made up my mind that it was more dangerous than operation. And so it is with every other remedy that has been suggested for the treatment of fibroid tumors. Fortunately, as I said, we do not disagree very much.

Dr. Eastman says every case should be operated upon when the diagnosis is made. It is fortunate for womankind that the diagnosis is usually made when she begins to present some symptoms. These symptoms, as has been shown by the essayist, are often very grave, although the tumor may be very small, and usually I think the very best advice we can give a patient is that the tumor should be operated upon. But to the question whether it should be operated upon as we would operate in a case of appendicitis, as soon as the diagnosis is made, I should say no! in some cases. It would be absurd to say that every case should be operated upon at once. The patient should be told that an operation is necessary, and that she should conveniently arrange her affairs to have an operation done or watch her condition with that object in view.

Simple fibroid tumors of the uterus without complications of tubes and ovaries are not common in my experience. Usually there is a large hydrosalpinx or ovarian tumor complicating the case, or pus tubes, or there is a dermoid cyst. Of course, there are exceptions, but usually they are complicated with tubal and ovarian disease and that is the objection to the electrical treatment. Now, I do not believe that tubal and ovarian mischief is responsible for the mortality which Dr. Hall spoke of, because we do not get such a mortality. If we are to accept the position of Dr. Zinke of ten, fifteen, twenty, or thirty per cent. mortality, it would not be scientific; it would not be fair, because I do not believe such statistics. I believe statistics are worth something, and I do not believe that it is necessary to have a mortality of more than five per cent. or at the outside eight per cent. I brought out this in a paper which I read two years ago—namely, that we should not have a mortality of more than eight per cent. in the treatment of fibroid tumors when the pedicle is dropped and the abdomen closed. I am referring now, of course, to the operative treatment of these tumors with all kinds of complications. In a simple case and no adhesions, there should be no mortality.

I think there is a good deal that can be said in regard to surgical intervention in connection with diabetes. Noble has worked that phase of the subject out, and in a paper he presented he has shown that a mere trace or the mere presence of sugar in

the urine should not seriously militate against an operation. Women are operated on who have diabetic urine, not a functional diabetes, but a true organic diabetes, and many of them pass through operations just as satisfactorily as if they did not have diabetes. Therefore, I think every sensible man would weigh his case, and if the dangers associated with the presence of a fibroid tumor were greater than those associated with the diabetes, he would remove the fibroid tumor as though the woman never had diabetes.

These papers are very interesting, and while at first glance they seem to be a good deal apart, after all I do not believe they really are. I believe we are all pretty well in accord with this subject.

Dr. Thomas B. Noble, Indianapolis.—These papers to me are a little at variance, and I am glad they are. I think we can all agree with what Dr. Hall said particularly, and his paper is very applicable here; but were the two papers presented before a body of general practitioners, I would decidedly agree with Dr. Eastman's paper and sit down. Dr. Eastman gave us advice, gave us a rule which I feel should be given out and should be followed. These patients appeal primarily to their family physicians, the men who have not had very much experience along this line, but the men who are so in the habit of advising their patrons in all cases that they will not, as a rule, refrain from giving advice here. The general practitioner is a man who conserves domesticity; he conserves the things relative to the family, and if he knows there is a loophole through which an individual can escape operation, he is very prone to put it off and to await the time of operation until the patient is brought into a condition somewhat extreme. Then he will call a surgeon, perhaps one of us, and we are asked to operate to save life. So we have an increased mortality, and we are not able under the conditions to do for that individual what might have been done or could have been done.

Our advice to the man who does not know all about these things by any means, and who does not know as much about these matters as we know, should be that the tumor ought to be removed as soon as it is discovered. Theoretically, these tumors fall under the class of all neoplasms which grow at the expense of the organism locally or generally. They are without function; they serve no purpose; they are fruitful of great harm; they kill; they are malignant in a clinical sense sometimes. Histologically, they become so. So instead of the advice Dr. Zinke has given (I believe he says that he would not operate unless there were strong indications for it), I believe it is best to operate unless there are strong indications not to do so.

Dr. John Young Brown, St. Louis.—This is a very important subject. It is a well recognized fact that in the surgery of the stomach, the gallbladder, the appendix and in the pelvis,

the cases that give us the highest rate of mortality are those that come to the operating table late. Another reason for early operations in fibroid tumors of the uterus is the perfection of the technic of abdominal hysterectomy. I know of no operation in surgery more beautiful in its conception and execution, and more pleasing in its results than the perfected abdominal hysterectomy. We are largely indebted for this perfection in technic to the work of the distinguished father of the essayist, the late Dr. Eastman.

The mortality following operations of this kind, even at eight per cent., is small, though that is a relatively large mortality for uncomplicated cases. If we weigh on the one side a mortality of eight per cent., and on the other the morbidity of perhaps sixty or seventy per cent., it is an exceedingly strong argument in favor of the early operative treatment of these tumors.

Dr. Frank A. Glasgow, St. Louis (by invitation).—I desire to say a few words on the subject of treatment of fibroid tumors of the uterus. Conservative treatment is not popular, and by conservative treatment I do not mean the do-nothing method. I believe there is a halfway measure in dealing with these tumors. I have had many patients with fibroid tumors which caused them absolutely no disturbance. They were submucous fibroids. I do not see any earthly reason why we should operate for all tumors of that class; nor do I see any reason why we should frighten them by giving them the advice Dr. Carstens gave one of his patients thirty-five years before the woman died or was operated upon. By so doing he kept that woman worrying for thirty-five years. She was in dread of an operation that must be done. She should have been told that she might never need to undergo operation, and that she might die of old age. She came very near it. Anyway, she might have had thirty-five years of comparative comfort in life. If he had operated on this woman thirty-five years ago, she might have died, as many did in those days. If he had operated by the abdominal method, she might have had a hernia.

In only a comparative few of these cases of fibroid tumors of the uterus is it necessary to operate as soon as a diagnosis is made. If a fibroid is located in the pelvis or intraligamentous tissue, it will cause trouble, and I believe in operating on such cases before the tumor gives trouble. On the other hand, if we have a submucous fibroid which is causing no trouble, I do not think we have any right to operate. I have noticed that the members of doctors' families are not operated in such a radical way as others, and those men who are working in public hospitals operate on cases that they would not think of operating on in private practice.

I think there is a certain hygiene of fibroid tumors as well as for other disease of the body. We can help these patients without operating on all of them. I have a patient under observation now, in whom I thought I would have to operate, but she is as comfortable as any woman in this city. She had a fibroid

which became tilted and wedged down in the pelvis, afterward it was pushed up, and to my surprise she is comfortable. I have a number of similar cases under observation who are comfortable, and probably will die of old age. I wish to add my views to those already uttered and say that I believe that many cases of fibroid tumors of the uterus, where the tumors are not situated in the cellular tissue, can be let alone. The number that become carcinomatous or sarcomatous is not large, in my experience.

Dr. Carstens.—Permit me one question before you take your seat. Have you not seen cases in which complications arose and you were very sorry they were not operated upon sooner?

Dr. Glasgow.—I have had such cases come into my hands, and I will say this, that as soon as complications occur in these cases I would operate. Again, I think any woman with tubal or ovarian trouble complicating a fibroid tumor ought to be operated on immediately.

Dr. O. H. Elbrecht, St. Louis.—During the discussion I have been trying to think of the cases that have come to me during the past year. They aggregate no less than eleven women with fibroid tumors who were supporting large families, and some of them washerwomen who could not work on account of the distress and discomfort which these tumors gave them. We must remember that the opportunity these women have of making a livelihood is impaired by the presence of these tumors, and I believe they should be taken out and it is nothing more than our plain duty to do so. Simple uncomplicated cases of fibroid tumor must be operated upon; I operate all of them and I am glad to say that I have not had a death from fibroid tumor this year. I have one woman in the hospital now, sixty-two years of age, who had a fibroid which gave her a great deal of trouble; she was operated upon and is doing nicely, and she, too, was self-supporting. These women must have these tumors removed in order to support their families, and it is in these cases that I say the sooner the better.

Dr. James E. Sadlier, Poughkeepsie.—I have sad recollection of a case where I considered it unnecessary to do anything. A woman, with a small fibroid, presented herself to me some five or six years ago. She was a woman of neurotic temperament. By reason of small size of tumor I advised no operation. She was to have presented herself to me at specified times for examination, so that I might judge her case and advise her, but this she failed to do, and she put off counsel as long as she could. Five years thereafter she presented herself to me, for the second time. When she came to me this second time the tumors reached far above the umbilicus, so that the case was formidable in every respect. I advised immediate operation. She left me and went to one of the surgeons in New York City, and was operated on. She was exsanguinated from loss of blood, and in such a condition that hemorrhage caused her death.

I have recollection of receiving a telephone message from a physician in the country to come prepared to do some major abdominal operation, or possibly a vaginal hysterectomy. I went to see the case, and found a woman, thirty-eight years of age, who had not been well for some time. She had had some hemorrhage, but not enough to cause her a great deal of trouble. When I saw her she was exsanguinated to a great extent, as a few days before she was taken with a profuse hemorrhage, rapid rise of temperature, and was septic in the extreme. She was almost bloodless and her pulse was scarcely perceptible. Upon examination I found a large sloughing fibroid, possibly about the size of a child's head, partially extruded into the vagina; it had its origin just above the internal os. I managed, without an anesthetic, to remove it. I cut away a large sloughing mass from the cervix. Fortunately, with considerable attention and great care she recovered.

For the last several years it has been my practice to follow the plan laid out by Dr. Eastman to operate when a diagnosis has been made. I cannot quite see why we should put the mortality at five, eight or ten per cent. from operations on these cases. Personally, I have not had it. At the present time, with a record going back over three years, I have operated on something like twenty or more cases (I do not pretend to give the exact number) for fibroid tumors, without a death. These patients were operated on practically as soon as the diagnosis was made. Of course, in that number there may have been some cases where I could not advise immediate operation. I may have left it to the discretion of the patient in some cases; nevertheless, they should be operated upon and the sooner the better.

Dr. Hall (closing the discussion on his part).—There are one or two points I would like to speak of for a few minutes. One is, I believe it is very essential that it should go out from this association we do not operate on every woman who has a fibroid tumor just as soon as we discover the tumor. I, at least, want it to go out that there is one member who does not operate on every woman that has a fibroid tumor the minute he discovers it. If I made any point clear in my paper, I think I made that one plain. There are hundreds and thousands of women with fibroids in their uteri the size of one or two oranges that are discovered by accident. I first emphasized the fact, figuratively speaking, that I did not consider any tumor that was smaller than an ordinary cocoanut in size. It was about this time that patients came to me with symptoms, and from that time the tumor increased in size. Small fibroid tumors that are doing no harm, producing no symptoms, had better be let alone for the present.

If we advocate and practise the removal of fibroid tumors the minute they are discovered, I believe it is wrong. It is not what I would advise my daughter, or my wife, or some other man's daughter or wife to submit to. She might lose her life follow-

ing operation. When we practise surgery along that line, we practise it along honest lines. If a patient comes to you with a lump in the lower part of the abdomen, if she is not losing too much blood from the presence of this tumor, or is not suffering pain between attacks, or if the tumor is not growing rapidly, and she is comfortable, I believe you should let it alone. It is just to surgery; it is just to the patient and to the profession. You may say to the patient that "the time may come when it will be necessary to operate, but you will know it in time. The tumor will annoy you a little, and you should see your doctor at once, if you have symptoms referable to the tumor." Then, if there is subsequently the development of malignant disease at the site of the tumor, from neglect, that is not our fault. We have discharged our duty. If the woman has neglected herself, knowing that she is living over this volcano, that is not our fault. We will not err on the wrong side. One may do this occasionally. When these patients are having symptoms, their family physicians should not neglect them and say that they do not amount to anything, and that the women will be all right when the menopause comes. Those are generally the cases that come too late for us to save lives, or if we do save life they have had an extra risk which they ought not to have had.

In reference to hematoma of the ovary, I was a little surprised at the remarks of Dr. Hayd, when he said he could not understand "why a hematoma of the ovary, when associated with a fibroid tumor, should be necessarily more dangerous than a hematoma under any other circumstances." It may be my misfortune to get delayed cases. I was going to say, I have had a large number of stretcher cases that were desperate, out of all proportion to what other men say they get in operations for fibroid tumors. In other words, I get complicated cases. I do not know why it is, but I sometimes think that if patients are to be believed or their word is taken for what it is worth, some of my professional friends shirk difficult or complicated cases. I do not know whether we can always rely on what these patients say or not. I know this much, that I operate every month or so on desperate cases of fibroid tumors. I have operated on three cases within a year that were sent out of public hospitals. One of them lay eight months in a charity bed in a hospital, hoping to get well enough to be operated upon. Within three days after she left the charity bed I operated upon her, and she is now alive and supporting her child as a washerwoman. It is now four months since the operation was done.

I hope I made myself understood in regard to hematoma. I will endeavor to make a drawing on the blackboard showing how the ovary is imprisoned underneath the tumor somewhere along the side. The patient may be a washerwoman, or she may be a society woman, and the tumor grows large enough to fill the pelvis. It is located in the lower uterine segment; the ovary becomes imprisoned, the woman has attacks of inflammation

which glues the ovary. She has another attack, and comes for operation. We find an ovary the size of an inkstand full of tar-colored fluid. It has glued everything to the tumor above, the pelvic floor below, perhaps resting against the rectum, and the contents smells like an ischio-rectal abscess. You cannot liberate that tumor without bursting the sac; you cannot liberate it by separating adhesions; you must pry it out. You invariably rupture the hematoma in trying to get it out; you cannot avoid smearing it over the field of operation.

I have had eight cases within three years, and of that number seven have had peritonitis following the operations. One of the fatal cases had hematoma complicating the fibroid tumor. I have one other on the dead list. I lost two out of eight. That is too large a mortality, although it is not large for that kind of cases. I trust I made this plain in my paper. These cases are not frequent, but it is very essential that we look for them. They are frequent enough to be suspected every time we have these stretcher or bedridden cases. Some may not want to operate on them for fear they may die. If there is a possibility of saving any of them we should operate. They are complicated cases, to be sure, and the point I wish to make is that they should be operated upon before they are so far advanced, because if you do not have the hematoma to deal with you will not have sepsis following the operation.

As to the mortality, I do not think it is fair to say that it is eight, fifteen, or thirty per cent., unless one takes the whole list of cases that a given surgeon operates upon. If he operates on a hundred cases the list should include all classes or types of cases. In operating on desperate cases, I would expect the mortality to be anywhere from twenty to thirty per cent., or more. But take cases in which there are no complications of ovaries or tubes, and you are not going to spill pus or tear the bowel in separating adhesions, and the like, I have put it high when I say that the mortality is two or three per cent. It ought not to be two or three per cent. in those cases. I do not remember of ever losing a case of that character in a hysterectomy since my improved technic of dropping the pedicle and sewing over peritoneum. I no more expect to lose a patient following an operation like that than I would from any simple operation which we do inside the abdomen. Take one of the other cases in which the tumor is blocked down in the pelvis, cannot get out, accompanied with inflammatory conditions. There is pressure upon the kidney, dilated ureters across the pelvic brim on one or both sides; there are damaged kidneys; the patient is depressed, and the mortality has always been high in such desperate cases, and always will be.

Dr. Carstens.—I think Dr. Asdale mentioned diabetes as a complication in these cases. Will you please tell us what you think about it?

Dr. Hall.—Take the case of a woman with a fibroid tumor who was practically dying and had diabetes as a complication, I would let her die from diabetes rather than operate, as the chances are she would succumb from the anesthetic. But take a case such as Dr. Hayd, I think, referred to, if there is only a trace of sugar, then there is not much danger accompanying the operation, and I would operate if I thought the operation was going to be comparatively easy. On the other hand, if the operation was going to be a desperate one, and the case was complicated, I would weigh carefully whether or not to advise operation. If you are going to kill the patient by operation, there is not much credit in it for her or her friends. If she has large quantities of sugar in the urine, and the operation promises to be desperate, the chances are you are going to kill her.

Dr. Carstens.—Is diabetes a contraindication to operation?

Dr. Hall.—Ordinarily, not.

Dr. Eastman (closing the discussion).—Were it not for the fact that I had a case which impressed upon me the importance of not postponing operations for fibroid tumors, I should not have had the temerity to present so radical a paper as I have done this morning. I am firmly convinced that it would be wise if the teaching went out from this association that all fibroid tumors of the uterus should be operated upon as soon as the diagnosis is made; at any rate let these women go to specialists, and if they direct postponement of the operation, let them be the judges, and not the general practitioner who is not capable of dealing with these cases.

Fifteen months ago I was a conservatist until a case cited above came under my observation. An unmarried woman, thirty-five years of age, consulted me with reference to a fibroid tumor that was absolutely symptomless. She herself discovered it. To all appearances it was innocent. I considered the teaching in regard to fibroid tumors, which indicated when and when not to operate. I applied exactly the same test that Dr. Hall applies. I told this woman to watch the tumor and return if she had symptoms. But she said, "Doctor, I want this tumor out; I am a maiden lady, and it looks bad; I want it out." I did not believe I was justified in taking it out, and I so informed the woman. I told her that she might die, but she insisted on having an operation done. I said to her, I am going on my vacation and I want you to come back to see me in three or four weeks, when we will talk the matter over. When I returned, the woman was dead. Autopsy showed that the tumor was necrosed, sphacelated. Of course, that is only one case; but the question arises, did I do justice to myself or to my profession? Hereafter I propose to operate on these cases as soon as I find them, if the patients will consent.

THE RELATIVE VALUE OF THE MEANS AND METHODS EMPLOYED IN ACCOUCHEMENT FORCÉ.

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It is doubtful whether any other subject of midwifery has received so much attention on the part of obstetric writers as this during the last four years. The general interest that every obstetrician and gynecologist must necessarily have in the subject is excuse sufficient for presenting it at this meeting. To obtain and maintain a thorough understanding and a lasting intimate acquaintance with this important chapter of obstetrics, we cannot speak of it too often or discuss it too much. This is all the more true because of the still wide difference of opinion among well established authors and teachers of no mean distinction regarding the relative value of the various methods employed to rid the pregnant uterus of its contents by force, at any time, from the fifth to the ninth month (inclusive) of gestation.

There are two distinct varieties of accouchement forcé: (a) the rapid, and (b) the slow method of delivery.

(a) Represents those cases in which the condition of the mother, and sometimes that of the child, demands a prompt and rapid termination of the pregnancy.

(b) Represents the class of cases in which the delivery of the child may be effected slowly, because of the absence of immediate danger to the mother and the existence of a justifiable disregard of the life of the fetus.

In the first variety of instances an hour consumed by the operation to effect delivery may be much too long; in the second, twelve or twenty-four hours, or even more, may be a period sufficiently short to complete labor with comparative safety to the mother, and occasionally to the child.

The tampon, bougie, rupture of the membranes, and the like, for the purpose of inducing labor are well understood, and

therefore will not be considered here. The other methods resorted to in accouchement forcé may be conveniently enumerated and considered in the following order:

1. The graduated steel or vulcanite dilators and the branched or bladed dilators.

2. The bag, or hydrostatic dilators.

3. The manual dilatation of Harris, and the bimanual dilatation of Bonnaire and Edgar.

4. The superficial and deep cervical incisions and Dührssen's vaginal Cesarean section.

5. The conservative Cesarean section.

6. Bossi's and similar metal dilators.

1. *The graduated steel or vulcanite dilators and the branched or bladed dilators* (of Hegar, Sims, Ellinger, Goodell, Palmer, Reynolds and others) have no other object than to open up, partially only, an unobliterated cervix or rigid os, preparatory to either digital, manual, or bag dilatation. Any one of these dilators do very well for this purpose. It is, however, necessary to add that they must be very carefully manipulated in order to avoid rupture of the amniotic sac. (The Bossi dilator, and other instruments of similar character, will be considered further on.)

2. *The bag or hydrostatic dilators.*—Braun's colpeurynter (1851) was first, accidentally, introduced into the uterus by Madurowicz in 1861, but systematically employed as a uterine dilator (hystereurynter or hysterynter) by Schanta in 1883. Because of its elasticity it would frequently escape from the uterus, with or without traction, creating but little or no dilatation. Baum used a hog bladder to overcome this difficulty, and Champetier de Ribes (1888) constructed an inelastic bag of several sizes, and which is now well known by his name. Boissard (1894) and Lucas (1897) modified, respectively, the Champetier de Ribes and Braun balloon by rendering the upper portion of the bag flat, or even concave, in order to prevent displacement of the presenting head or breach. Since then balloon dilators have been constructed of varying materials, shapes and sizes by Müller, Munich; Bauer, Stettin; Vorhees and Coe, New York. However, the Champetier de Ribes balloon is still in great favor with most operators. Barnes fiddle-shaped bags (1862) are no longer considered of any value. Meurer, Coblenz (1884), suggested and practised gentle traction upon the balloon in cases of placenta previa.

Hydrostatic dilatation is regarded by many, if not most, of our

obstetric authorities as the best, safest and most natural method of hystereurysis for accouchement forcé. Some believe it applicable in all cases, under all circumstances, and have called it a blessing. It is unquestionably an excellent procedure in some cases, but, as we will see, by no means applicable in all instances; nor is it an operation devoid of danger. It is true, bag dilatation induces promptly contractions of the uterus, promotes steady, gradual dilatation, and acts as an efficient tampon. For the induction of prompt uterine contractions, however, the condition of the mother must be, at least, fair; for steady and gradual dilatation, time is a much-needed requisite; and, as the best tampon is efficient only in the presence of "controllable" hemorrhage, it becomes evident that bag dilatation is indicated, mainly, when the mother's condition is good, or nearly so; when time is not an important element as to the safety of either mother or child, and when uterine hemorrhage proceeds from a lateral or marginal placenta previa rather than from a central implantation of this organ. In the latter form of ectopic placenta the child's life is at once sacrificed, and the mother's life in seldom saved when bag dilatation is the method of forced delivery. The same may be said of ablatio placentæ, if labor is effected by the aid of the balloon. It is doubtful whether this method is advantageous to the mother in either the light or severe form of eclampsia, unless it be to hasten a labor already begun. Hystereurysis has, undoubtedly, a tendency to precipitate and increase the number and duration of the eclamptic attacks.

Notwithstanding, the field of application of balloon dilatation is not small. It is the best method in premature rupture of the membranes; uterine atony; malpositions of the fetus, either before or immediately after rupture of the amniotic sac, when dilatation of the os is slow and irregular; in prolapsus of the cord; prolapsus of the feet, and especially in the lateral and marginal varieties of placenta previa, when the balloon may be introduced on the side opposite to the ectopic organ, and thus successfully arrest the hemorrhage from the site of the detached portion, without necessarily interfering completely with the circulation of the still adherent part of the placenta upon the other side.

Objections to and contraindications of balloon dilatation.—Dührssen and others have pointed out, long since, the disadvantage of all artificial dilatation of the cervix, namely, that thinning and effacement do not occur under mechanical attenuation; when in bag dilatation traction is added, the cervix is dragged down, not

drawn up, as in natural labor. Continuous traction by weight or hand constitutes a source of peril not to be disregarded or treated with unconcern. Rupture of the lower uterine segment is the danger of prolonged and undue traction upon the balloon. Leopold claims, and not without good reason, that the danger of sepsis can never be entirely excluded. The bag is not, as a rule, easy of introduction, and lacerations are apt to occur. Hartz asserts that the danger of infection is increased by the long and intimate contact of the balloon with the cervical tissue, and the necessary exposure of the parts during its employment. Meurer, too, speaks of the uncertainty of asepsis of the Champetier de Ribes balloon, and that it is liable to rupture. Displacement of the presenting part by the balloon, and immediate prolapse of the fetal extremities upon its removal, are objections worthy of consideration. Balloon dilatation is contraindicated when the head occupies the pelvic cavity; in the presence of sepsis in the vagina; placenta previa centralis; and when the cervix is hard, uneffaced, and the canal closed.

Bag dilatation is, to a certain extent, deservedly in favor at home and abroad. The hundreds of cases reported by Dührssen, Biermer, Zimmerman, Silbermann, Ahlfeld, Kuestner, and Holt all attest to its great value in well-selected cases, though the fetal mortality is quite high—from 60 to 65 per cent.

Dührssen, Kuestner, Graefe, and Blacker rupture the membranes before the introduction of the balloon.

Martin, Ahlfeld, Meurer, and Kaufmann seek to keep the membranes intact, and try to insinuate the bag between the membranes and the uterine wall.

My own experience has been that the membranes are ruptured in spite of all care, in the majority of cases, during the introduction of the balloon, and that its occurrence has but little influence upon the subsequent progress and final result of the case.

Pape and Schiffen have recommended gradual filling and distension of the balloon, and that the bag should never be tensely filled, in order to avoid weak and cramp-like pains. The latter attaches a two-pound weight after two to four hours have elapsed.

3. *The manual dilatation of Harris and the bimanual dilatation of Bonnaire and Edgar.*—Harris's method implies the introduction of the whole hand into the vagina in the beginning, and into the uterus subsequently. The Edgar-Bonnaire method compels more or less continued exposure of the parts involved in the

manipulation. These are strong objections. Shock, lacerations, hemorrhage, and sepsis are not infrequent complications even in cases well suited to this method. Invalidism is often a consequence, and demands operative measures for relief sooner or later. Many, if not all, of these complications and sequelæ may be entirely avoided in some cases, and reduced to a minimum in quite a number of others, if the cases be well selected and the operation carefully and skilfully executed under the most rigid aseptic precautions. Neither method should be adopted unless the cervix is completely or nearly effaced, and the os patulous and readily dilatable. This, indeed, is true of all cases, but especially so if the patient be a primipara. While it is admitted that manual and bimanual dilatation are justifiable procedures under circumstances favorable to their execution, it is pertinent to remark that the life of the child as a rule, and that of the mother occasionally, is sacrificed under these two methods. Both methods are taught with great earnestness and much emphasis by recent writers and textbooks (Edgar, Williams, Hirst, and Webster), and they are practised extensively and indiscriminately the world over by the skilled and experienced, the awkward and ignorant alike. The result is that disasters and tragedies are frequently observed, but seldom published.

To illustrate: Williams[5], who is the author of an admirable textbook on obstetrics, reports thirty cases of eclampsia which occurred in his own practice, with a maternal mortality of 23 per cent. and a fetal mortality of 40 per cent. In one of these cases he admits that the death of the mother was due to the operation. His patient was a colored girl, aged 17. The cervix was unobliterated and the os closed. He first tried Harris's method of dilatation and failed. Goodell's dilator was next employed; this was followed by Hegar's graduated dilators, after which only the little finger was admitted into the os. This in turn was succeeded by the introduction of a medium-sized Champetier de Ribes balloon, which, at the end of sixteen hours, failed to bring about further dilatation. Again Harris's method was resorted to, and with it a dead child was delivered by version and extraction. The mother succumbed promptly to a fatal infection. Williams confesses to an "ill-judged zeal" in this case, and admits "a justification for Cesarean section."

The same author reports another case in connection with the one just cited: patient is V-para, pregnant seven months, and the victim of placenta previa. Cervix shows stellate lacerations.

External os patulous. Internal os readily admits finger. Treatment: Harris's method of dilatation, perforation of placenta, version and slow extraction of child. Result: deep tear in the left side of the cervix, extending into the lower uterine segment and giving rise to incomplete rupture of the uterus and subperitoneal hematoma. The patient died within an hour after delivery.

These two cases are not quoted with a view of reflecting upon the distinguished author, but to show what may be expected of manual dilatation under certain conditions. Everyone of experience knows that Williams is not the the only one of skill, knowledge, and good judgment who has been so unfortunate. He had the courage and honesty to report these cases. It is impossible to say that much of many of his confrères.

But here is the vital point: if it is possible that results of the character just cited are obtained by men known to be well fitted and highly qualified for obstetric work, what may we expect of men in general practice who attend women in confinement and who have been taught that the above course of procedure is not only justifiable, but proper and comparatively safe? Nothing is more fatal to the life of these unfortunate patients than to shift from one method of treatment to another and back again, and finally, as has been done in some cases, make a Cesarean section. It is this sort of management that has brought disaster to homes and discredit to the profession. Involuntarily the thought suggests itself that the lives of the two patients in the instances just quoted might have been saved by deep cervical incisions or celiohysterotomy. But as long as men of acknowledged authority will not admit that it is better to make a vaginal or abdominal hysterotomy before precious time is lost and the patient injured and exhausted, there is little hope, and tragedies in the confinement chamber will continue to multiply.

4. *The superficial and deep cervical incisions and Dührssen's vaginal Cesarean section.*—Incisions of the os, when the cervix is completely effaced, have been practised with good results, time and again, ever since Baudelocque. They were recommended by Coutouly (1808), Simpson (1847), Bedford (1843), by Braun, Skutch, and many others. They have been more frequently performed in ordinary labor when rigidity of the os caused great suffering, undue prolongation of labor, and when chloral, morphia and other remedies failed to secure relief.

What concerns us most are the deep and long incisions of the unobliterated cervix, as described, practised and recommended by

Dührssen (1890). They are indicated when the cervix is hard and intact; when there is marked elongation of the portia vaginalis; when the cervix is the site of extensive and unyielding cicatrices, or of malignant disease. Cervical incisions are recommended in conglutinatio orificii externi, in premature rupture of the membranes, generally contracted pelves, eclampsia, heart disease, articulo mortis, threatened rupture of the uterus, placenta previa, ablatio placentæ and other conditions demanding rapid delivery.

Kerr[10] reports four successful cases of deep cervical incisions: one of rigidity of the cervix, two of eclampsia, and one of pernicious nausea with continuous vomiting. Webster[9] reports a successful case of extensive kidney lesion, in which at the end of the seventh month of pregnancy the cervix was four inches long. Stamm[19] read a very interesting paper on this subject before this Association last year, in which he cites a number of cases operated upon by others, and two of his own, with excellent results. My own personal experience with deep cervical incisions during the past two years comprises five cases: two of persistent and pernicious vomiting, the period of pregnancy being at the sixth month in each; one of eclampsia, pregnant seven and one-half months; and two of placenta previa, pregnant six and six and one-half months, respectively. All the children were delivered alive by version and extraction, but died soon after birth. The mothers lived. There is, indeed, no necessity of multiplying cases. The literature is replete, and is growing larger every day, which demonstrates the value of this method of accouchement forcé.

The incision or incisions, as the case may be, are made in the median line; as a rule, anteriorly, sometimes posteriorly, occasionally in both places, and should extend from the os externum to the os internum, inclusive. The portio vaginalis is completely divided at once; the portio supravaginalis and the os internum only one-half or two-thirds their thickness. In the presence of excessive cicatrices or malignancy, the incisions must be carried through the entire mass of the diseased tissue; indeed, in the latter cases Dührssen's vaginal hysterotomy, followed by vaginal hysterectomy after the uterus has been emptied, should be performed, provided the adjacent tissues are not irremediably involved.

It should be understood that there is a vast difference between "cervical incisions" and "vaginal Cesarean section." In the former the cervix alone is cut; in the latter the anterior cul-de-sac

is divided first, and the separated tissues and the bladder are then forced away from the uterus as high as the peritoneal fold before the cervix and lower uterine segment is incised in the median line anteriorly.

Many of the objections made to cervical incisions and vaginal hysterotomy are not well taken. Holmes[4] mentions infection, hemorrhage, and extension of the incision during labor. Hofmeier[11] reports two cases in which the scars produced by deep cervical incisions proved a great disadvantage in subsequent labors; in both of these cases a rupture was found in the uncovered uterine wall, due to the imperfect union of the incisions of the cervix made in previous labors. Autopsies revealed the tears and large, subperitoneal hematomata.

It cannot be denied that these complications and sequelæ, one and all, may arise. They are either the result of conditions already existing at the time of the operation, or they may be brought about by accident or carelessness. But this is true of any and all the methods resorted to in accouchement forcé, and, it seems to me, especially so in bag, manual, and metal dilatation, in every one of which sepsis, hemorrhage and laceration are liable to occur. An incision has a distinct advantage over a tear, because an incised wound unites quicker and better than a lacerated one. There is but little time expended in the production of a cut with the knife or scissors, and the violence of digital, manual or metal dilatation, which usually precedes and often causes the tear, is absent. Cervical incisions, superficial and deep, as well as vaginal Cesarean section, must be recognized as very valuable means in accouchement forcé. The profession owes Dührssen a debt of gratitude.

5. *The conservative Cesarean section* does not, as yet, occupy an unchallenged position among the means resorted to in forced deliveries, as ordinarily understood by the profession at large. There are still a few authorities, here and abroad, and a very large majority of obstetricians and general practitioners on both sides of the Atlantic, who firmly believe and advocate that Cesarean section should not be performed except in the presence of insurmountable mechanical barriers within the parturient canal. "Save the mother! Never mind the child!" is the cry often heard in medical assembly halls, and frequently quoted in professional literature. It sounds well to say this, and the exclamation becomes all the more impressive, principally upon the laity, because in a certain sense it is true. What we should say is: "If, after

due reflection and consideration, it is impossible to save both mother and child, save the mother!" If by disregarding the life of the child we could always save the mother from an untimely death, or even only permanent invalidism, who is there who would say aught against the first exclamation? The truth is, that in the past as well as in the present the life of many an unfortunate mother has been needlessly lost by disregarding the interest of the child about to be born. Let me confess that I have observed in my own practice, as well as in the practice of others, the death of pregnant women as the direct consequence of persistent, vain and fruitless, though heroic and sanctioned, efforts to deliver them of their offspring, dead or alive, per vias naturales. Often the attempts made at delivery have been justly described and truly characterized as vicious, brutal and offensive in the highest degree, yet strictly in accordance with every rule of the art prescribed and described in textbooks and indorsed by teachers of obstetrics of to-day. Is it necessary to cite cases? I think not.

The writer was much pleased when, a short time ago, he read the report of a case of Cesarean section for placenta previa by one of our fellows, Deaver, of Philadelphia.[20] He states that he selected this operation "because more familiar with its technique, and therefore more likely to have success than with podalic version." He saved both mother and child. It is a matter of conjecture only what the result would have been in this case had she been subjected to forcible dilatation of the cervix, separation or perforation of the placenta, version and extraction of the child, even by one of Philadelphia's skilled and experienced obstetricians. This patient is to be congratulated on having fallen into the hands of Dr. Deaver. More need not be said.

As an argument against the more frequent adoption of celiohysterotomy in accouchement forcé, it has frequently been asserted of late that most of the obstetricians and general practitioners are more familiar with the use of the tampon, bag, manual and metal dilatation; with version, forceps and embryotomy than with the technique of Cesarean section; and that those possessed of the necessary knowledge and skill to perform this operation should not select it until they have failed with any, several, or all of the methods of forced labors.

This is an argument as unsafe as it is unwise. Considered from an aspect of modern surgery, the ground assumed is absolutely untenable, to say nothing of the fact that the record of all the cases of placenta previa, for instance, in which the conserva-

tive Cesarean section was chosen from the start as the best method of extricating the patient from her precarious condition has never been excelled. Men who can be taught successfully to apply the tampon, dilate an os or cervix manually, or introduce the Champetier de Ribes balloon can, even with more ease, acquire the technique of Cesarean section. The general practitioner who is not well prepared for nor sufficiently familiar with all the means and methods adopted in forced deliveries had better call to his aid, or turn over the case at once to, one who is quite qualified and amply equipped for work of this kind. In fact, patients of this kind should be taken to a hospital.

R. L. Dickinson[4] has aptly expressed it when he says: "The man who would not wish to have the carotid of his patient tied in any but the most favorable hospital surroundings has it in his mind that it is right and proper to face a far more alarming hemorrhage unaided, in a dusky apartment, on his knees between the bed and the wall. If, then, a certain number of such cases call for technical ability of no mean order, let us save the lives in the future by recognizing this class as in the domain of major surgery and, forearmed against danger that may always be foreknown, place the patients where they can be properly cared for. The day cometh, and now is, when grave operative delivery belongs in the operating room as truly as does the appendicectomy or ruptured tubal gestation."

To this we may add: The obstetric specialist and teacher not perfectly familiar with gynecologic and abdominal surgery, is like a captain of an ocean liner who is deaf, dumb and blind. As long as the sky is clear and the sea quiet, little will be required of him; but let a storm come up, a fire break out or any other accident occur, some one else will have to take his place or the ship will be lost. As with the captain and his ship, so with the obstetrician and his patient. Both should be well prepared, and able to cope with any emergency.

Cesarean section for accouchement forcé will be rarely necessary. It should never be performed unless the child has attained, at least, the seventh calendar month of gestation and manifests signs of life and vigor. This, in the presence of placenta previa, ablatio placentæ, or eclampsia, associated with a hard, closed cervix, and perhaps a malpresentation of the child and primiparity, would constitute an almost definite indication for this operation. If promptly and properly done under these circumstances, Cesarean section entails less risk to both mother and child than any

other mode of delivery, except it be Dührssen's vaginal hysterotomy or deep cervical incision. But even these should not be considered if evidence exists which points to the slightest disproportion between the parturient tract and the child to be born.

6. *The Bossi and similar metal dilators.*—The metal dilators spoken of in the beginning of this paper are intended merely to open the cervix or os sufficiently to permit the introduction of one or two fingers, or some other instrument with which to effect delivery. The Bossi dilator and its competitors were intended for the avowed purpose of displacing deep cervical incisions, and vaginal as well as abdominal hysterotomy. The following metal dilators are considered of value:

(1) Bossi's, four blades.

(2) Frommer's, eight blades.

(3) Kayser's, eight blades.

(4) Krull's, one three and one eight blades.

(5) Raineri's, five blades.

(6) Preiss's, four blades, easily sterilized and cheap.

(7) Schwarzenbach's, four blades and tulip-shaped.

(8) Müller's, two blades, constructed on the principle of a glove stretcher.

(9) Knapp's modification of Bossi's dilator, substituting wire netting or rubber for the caps of the dilating points.

It is well known that, but for Leopold's recommendation of the Bossi dilator, this instrument in particular and metal dilatation in general would have received far less attention during the last few years than it has. It would be a needless waste of time to dwell upon the merits and demerits of each of the dilators mentioned. As the Bossi dilator is regarded as the most perfect and effective of them all, its advantages and disadvantages belong alike to all of them, and differ only in degree. The usefulness of the Bossi dilator as extolled at first by its inventor, then by Leopold (1901), and thereafter by Meyer, Kopenhagen; Beck and Knapp, Prague; Peters, Dresden; Langhoff, Emden; Paoli, Genoa; Brothers[21] and Dickinson, New York; by Lederer and others may be stated as follows:

(a) It secures complete dilatation of the uterus at any period of the third trimester of pregnancy, whether the cervix be obliterated or not, in from five to forty-five minutes.

(b) It admits of perfect sterilization, is comparatively easy of

introduction, and does not seriously injure the cervix by pressure, nor laceration by distension.

(c) Leopold declares that it is a safe and useful instrument and should be in the hands of every practitioner, and that in the future eclampsia will rarely furnish an indication for Cesarean section.

(d) Dickinson, New York, proclaims the Bossi dilator "a great boon, and none of its imitators approach it."

(e) This dilator may be employed in any condition demanding accouchement forcé, except in malignant disease of the cervix.

This is, collectively, the estimation in which this instrument is held by the above authors. The number of cases reported demonstrating the range of its utility exceeds two hundred. Eclampsia and placenta previa are the most frequent causes for the relief of which this method of dilatation has been, and still is, highly recommended and practised. If all that has been claimed for this instrument by Bossi and his followers were true, what a blessing it would be! But, oh! what a disappointment it has proved itself in the hands of many of the best obstetric operators!

The impression produced upon the profession by Leopold's recommendation of the Bossi dilator was certainly effective and productive. Opposition to it soon arose, which is only natural, but in this case it was anxiously expected by many. Hartz fittingly remarks: "The cases treated by Bossi dilatation grow like mushrooms from the soil." Look at the Bossi dilator, separate its branches, and, while the ingenuity of its mechanism challenges your admiration, a feeling of apprehension and resentment against its employment will arise within many and grow with every moment of contemplating its possibilities and impossibilities. Bossi gives the subjoined indications for his dilator:

I. The cervix may be immediately dilated, whatever the condition of softening, shortening, or dilatation, to a sufficient extent to extract a fully developed fetus.

II. This dilator should be preferred to Cesarean section, ante- as well as post-mortem.

III. It is indicated in the induction of premature labor.

IV. In grave cases of eclampsia.

V. In cases of heart disease, tuberculosis, dead and putrid fetus. Fieux adds: pneumonia, pleurisy and ascites.

VI. When the life of the fetus depends upon rapid extraction.

VII. In placenta previa; anatomical, cervical stenosis with undue prolongation of labor.

VIII. In cicatricial stenosis the instrument should be tried before cervical incisions are made.

IX. In cases of incarcerated placenta, the result of uterine tetany.

Bossi supports the above with excellent results obtained by himself in over one hundred cases. An additional hundred cases have been furnished by himself and several other able and distinguished men since he made his first report (1891).

In a most exhaustive paper on this subject by Hartz[2], we find that Strumpel, Blau, Rubeska, Heyn and Jautze, v. Bardeleben, Wagner, and Rissman all speak of having had more or less extensive lacerations with Bossi's dilator. De Lee, Chicago, had the same experience in three cases. V. Bardeleben reports two fatal results. Hartz states that cervical tears are often overlooked, because they seldom bleed; that Leopold never looked for lacerations unless there was hemorrhage. Zangemeister, in reply to Bossi's and Leopold's statement that, "with increased practice there is a decrease in frequency of laceration," says: "We have no right to acquire the necessary skill at the expense of the health and life of patients who place themselves in our care." The danger of septic infection is considerable from pressure wounds, because of inevitable sloughing. Formation of cicatrices will follow, and may become serious obstacles in subsequent labors or produce symptoms which make life a burden, creating the necessity for operations; and it should not be forgotten that, hypothetically at least, cicatrices are considered a frequent cause of cervical cancer. Schatz points out that metal dilatation may be followed by uterine atony. Zangemeister, in spite of slow and careful dilatation with the Bossi dilator, had multiple lacerations in every case. Section had to be made in one of his cases, and it was found that two of the tears extended to the peritoneum; the vagina, too, was badly torn, besides several smaller tears in both cervix and vagina. Hammerschlag reports excessive lacerations in five out of seventeen cases. Osterloh had the same experience, including profuse hemorrhage. Williams, Baltimore, says: "If such serious results as those he himself reported follow the employment of a method in which the amount of dilating force can readily be appreciated by the hand, what must we expect when a powerful metallic instrument, such as Bossi's, is employed, in which the dilating force is applied blindly to a system of compound levers by means of a screw or vise?"

The writer has had but one single experience with the Bossi

dilator. The instrument was used with the greatest care, and according to every rule laid down, in the following case: patient aged 38; VII-para; pregnant six months; placenta previa; duration of hemorrhage four weeks, at intervals, and sometimes quite profuse; very anemic and exhausted, but otherwise cheerful. Cervix nearly effaced; os admits tips of index finger, feels soft and suggests dilatability. Bossi's dilator was introduced without the caps, as the opening of the os proved too small with them in position. Slow and gradual dilatation, alternated with relaxation, for about five minutes. Indicator showed 5 cm. dilatation, when a large rent occurred on the right side of the cervix; hemorrhage quite profuse; patient was delivered by perforating the placenta, then version and extraction of the child. The rent was stitched with catgut. Hematoma and sepsis developed, which prevented union of the laceration. Patient made a very slow recovery, and is still an invalid.

Baum, Sellheim, Martin and Fraenkel strongly advise against the use of Bossi's and similar dilators. Dührssen cannot detect in Bossi's method anything that is either safe, certain, gentle, or free from danger. He considers it a misfortune to have every practitioner provided with this instrument, as recommended by Leopold and others. Dührssen expresses the hope that his easily and quickly performed vaginal Cesarean section may completely rout the gruesome metal dilatation, and Hartz does not hesitate to say that the Bossi dilator and its competitors should all be relegated to the lumber room of obstetric instruments. De Lee's three cases all terminated fatally; the first died of apoplexy, the second and third of the effects of Bossi dilatation, in all probability. He told the writer personally that in one of these cases he might have saved both lives by a timely celiohysterotomy. Bacon, Chicago, believes the Bossi dilator a dangerous instrument, and that it should not be recommended. V. Bardeleben states that there are cervices which will not yield to any manner of dilatation. The most inexperienced may introduce Bossi's dilator and overcome any obstacle during dilatation, but what may happen to the cervix remains a secret. Ohlshausen is of the same opinion.

CONCLUSIONS.

Having thus considered at some length the principal methods of accouchement forcé, I present the following conclusions:

1. *The graduated steel or vulcanite dilators and the ordinary branched or bladed dilators* are mainly employed for the purpose

of dilating the cervix or os preparatory to digital, manual and bag dilatation.

2. *The bag or hydrostatic dilators,* of which the Champetier de Ribes balloon and its modifications are the most favored, should be employed only when time is not an important element in the case; when the cervix is thoroughly softened, partly or entirely effaced, and an easy introduction of the balloon possible. This form of hystereurysis is contraindicated in central placenta previa and in eclampsia, mild or severe; if, in these conditions, it is determined to empty the uterus, deep cervical incisions, vaginal or abdominal hysterotomy promise the best results for mother and child. To prevent continuation of the cervical incision, a suture may be placed in the upper angle of the wound.

3. *The manual dilatation of Harris and the bimanual (digital) dilatation of Bonnaire and Edgar.*—A soft and partially obliterated cervix and dilatable os are absolute prerequisites for this variety of uterine dilatation. It is to be preferred to hydrostatic hystereurysis when time constitutes an important element. Under this method the life of the fetus is often lost and, unless great care is observed, sepsis, lacerations, hemorrhage, profound shock, and sometimes even death of the mother, may occur.

4. *Deep cervical incisions and Dührssen's vaginal hysterotomy* are destined to play a permanent and important rôle in the management of forced labors in the future. Many of the cases now subjected to manual or balloon dilatation will be treated by cervical incisions. It is *the* method in the presence of sepsis of the vagina, because the operation is short in duration and can be performed under a continuous flow of an antiseptic solution. An intact cervix, whether hard, elongated or not, is always an indication for cervical incision. Vaginal hysterotomy is indicated principally when the cervix is the site of malignancy or extensive cicatrization. If there be a palpable difference between passage and passenger, the Cesarean section should be the choice of the operation.

5. *The indications for the conservative Cesarean section* have been so well defined by myself here and in previous papers that it is needless to repeat them now. Cervical incisions and Dührssen's operation will, however, take its place in many instances, notably in cases of marked prematurity.

6. *The Bossi and similar metal dilators,* if they are not entirely needless, are certainly very dangerous instruments. From what has been said, it is safe to predict that rapid and complete metal

dilatation will never become a popular method; that, sooner or later, it will receive universal condemnation, and thus reach its final and well-deserved destination, "the lumber room of obstetric instruments."

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DISCUSSION.

Dr. Henry Schwarz, St. Louis.—I was very much interested in Dr. Zinke's paper, and was exceedingly glad to hear his observations with reference to Dührssen's vaginal Cesarean section, because personally I have had no experience with that new method. However, I am fully aware that it is a valuable addition to our obstetrical armamentarium. I quite agree in general with all that Dr. Zinke has said in his contribution, except that he appears to me to be a little too radical in a few matters.

In going over his paper I will start backwards and speak of the operations he has touched upon, among them conservative Cesarean section, Dührssen's vaginal Cesarean section, dilatation with steel dilators, rubber dilators, and manual dilatation. I can conceive of exceptional cases as, for example, a case of eclamptic convulsions, or a case of placenta previa, in which Cesarean section might be justifiable in proper hands and under proper surroundings. As a rule, in eclamptic convulsions Dührssen's

method should be the one of choice, and there can be but very few exceptions where the conservative Cesarean section is indicated. In cases of placenta previa, I wish to say most emphatically that it is absolutely wrong, unless we adhere to the principles enunciated yesterday, of having two rules, one for this association, and another for the general medical public; otherwise I want to say that the suggestion of Cesarean section, offered as one of the regular modes of treating placenta previa, is certainly misleading. It would also show ignorance of the way in which cases of Cesarean section present themselves whether they come to the knowledge of the general practitioner or to that of the specialist. They do not occur so that these patients can, as a rule, be placed in a hospital.

The cases that originate in a hospital might be treated in a different way. Of the thousands of cases of placenta previa that occur, only a small percentage of them would ever be placed in a hospital. Besides, it is hard to tell whether the case is one of central implantation or not, unless there is sufficient dilatation. No one would maintain, in a case of marginal, eccentric, or low-seated placenta with hemorrhage, that Cesarean section should be resorted to. Whenever a diagnosis of placenta previa centralis is made, the cervix is so far dilated that no one would think of doing otherwise than to deliver through the natural way. At present it seems to be the opinion of the medical profession that we cannot have considerable dilatation of the cervix, with considerable exposure of the placental tissues, without losing the child. Practically, that is not so. It is a matter of common knowledge that cases of placenta previa occur in which the cervix is almost completely dilated, with only the marginal placenta still adherent, carrying on the fetal circulation; yet the child is fully alive and is delivered alive. For that reason I do not think that haste should be made in interfering with a case of placenta previa of any kind. It is good practice in these cases to arrest hemorrhage and give nature a chance to dilate the cervix sufficiently to deliver. I have never subscribed to the modern practice of turning in all cases; nor do I subscribe to the dogma, "Save the mother and never mind the child." In most cases both can be saved, or at least both can be given a fair chance.

In regard to Bossi's dilator, I am of the opinion that, as may be said of most new instruments which are exploited on the one side, there is a limited sphere of usefulness for it. I cannot understand why the statements of men like Leopold and others should not carry some weight, as they are based on some real merit in the use of the instrument, and the condemnation of others of this instrument cannot change me in that opinion. If a man approaches the instrument in the spirit Dr. Zinke did, because he might be asked a certain question and select the worst case for applying the instrument, then no wonder failure is met. I do not think his failure should be laid at the feet of the instrument; that he had a tear when he applied it in a case of placenta

previa is not to be wondered at. Dr. Zinke is well aware that when the placenta is inserted above the cervix the lower uterine segment will tear, and while the instrument was originally recommended for such cases, the consensus of opinion is against its use in precisely those cases, and I do not believe any of the older obstetricians ever made an attempt to use it in a case of placenta previa, because in the presence of that it seems out of place. But in cases of eclamptic convulsions, I can see how we might employ it with hopes of success. Of course, we would not use it in a case where there is great resistance of tissue, but it has occurred to me whenever delivery is determined upon the patient is anesthetized (and quite often under deep narcosis the conditions change); then any procedure required will be adopted. But when upon examination the cervix is found poorly dilated, manual dilatation may be all that is needed. In other cases the tissues may be soft and yielding, and then Bossi's dilator may be used. I have used it twice, and while I know that two cases are not sufficient upon which to base an opinion, yet in both instances it worked like a charm. These cases were especially selected for the instrument and the results certainly justify a favorable word for the Bossi dilator. I would not abandon the use of this instrument altogether, as I think it should be given further trial.

As far as rubber dilators are concerned, personally I have little faith in them. It is affirmed that they can dilate the cervix quite rapidly, under special conditions. I know men who have used them who said they could dilate the cervix in from five to ten minutes in suitable cases, particularly in those cases where the cervix is yielding.

Dr. James F. W. Ross, Toronto.—I was very much pleased to hear this paper. It is an excellently prepared one, as are all of Dr. Zinke's contributions. I am glad he is favoring a larger range for the conservative Cesarean section. Now, some of you may ask what right I have to speak on this subject. It is true that I am not an obstetrician, but as an abdominal surgeon I am called upon occasionally to do obstetric operations. In calling to mind my work in this connection, I present some reasons for certain ideas that experience has developed.

I have done Cesarean section three times, with the recovery of the mother and the loss of the child in each case. In the first instance Cesarean section was done before the child was viable. In the two other cases the operation was postponed so long that the child was already dead. Upon my return from Europe, after a season spent with Mr. Tait, who was a great advocate of the Porro operation, I performed it several times. The question between Cesarean section and the Porro operation has been pretty well settled, and we have come to the conclusion that we should do the Porro operation when Cesarean section fails—namely, when we are unable in any other way to control hemorrhage. The last Porro operation I did was in a case reported to this association, where the woman delivered herself up through the va-

gina into the abdominal cavity, the fetus and placenta being forced through an enormous rent in the posterior vaginal culde-sac, and in that case I did Porro's operation to control hemorrhage.

I have operated on two cases of rupture of the uterus with recovery in each, without having performed Porro's operation, but by gauze packing, and I think Porro's operation in these cases should not be adopted unless there is hemorrhage that otherwise cannot be controlled. We have made progress; we preserve a woman's organs, leaving them intact, by doing conservative Cesarean section. The first operation of this kind which I made was very easy to perform. If we read the details of the operation, and do it as we have been taught, closing the abdominal wound above when the uterus is withdrawn from the abdominal cavity, and keeping everything packed with sponges, so that if any of the liquor amnii escapes it does not cause trouble, the results will be good. I consider vaginal incisions and cervical dilatation as relics of the past, and though Cesarean section formerly was extremely fatal, yet from what I have seen of the application of forceps applied at the brim, of craniotomy and of bad cases of placenta previa, I would very much prefer performing Cesarean section in the presence of such conditions, and I believe if we do it properly, we will not only be able to save more mothers but more children.

The performance of the operation in cases of eclampsia is a different proposition, because it is questionable whether any procedure will save the mother in a case of eclampsia, and those of us who have had considerable experience in eclamptic cases know that the convulsions may continue after the uterus is emptied. I even have had patients in whom the convulsions have come on twenty-four or thirty-six hours after the delivery of the child, showing that as yet we scarcely understand the true causation of eclampsia. Eclamptic cases should be left out of consideration, but in the other cases I should give the preference to Cesarean section, and I believe in ten years' time we will perform the improved Cesarean section more frequently than we do to-day, adopting the abdominal route which is easier for the surgeon and will afford a better chance for both mother and child.

I was glad to hear Dr. Zinke's condemnation of dilators in general, and the Bossi dilator in particular. It is an instrument which, if it does not dilate, will tear, and we all know the significance of such injuries. We know they are extremely dangerous, and that the occurrence of sepsis is invited through the avenue afforded by laceration.

Referring again to conservative Cesarean section, I believe there are two important points to be considered in connection with the performance of the operation. First, the entire removal of the uterus from the abdominal cavity to protect the parts from behind from sepsis, keeping everything warm and covered with towels, as I have already remarked; and, second, careful closure

of the uterus. I have adopted the use of two rows of sutures in closing the uterus. In one case I put iodoform gauze down from the cervix into the vagina so as to insure drainage in that direction.

Dr. O. H. Elbrecht, St. Louis.—First of all, I wish to speak of the case Dr. Zinke reported in Dr. Williams's experience. He did not dwell on this case particularly, but I thought it was probably one of those unrecognized cases of cervical cicatrices, and I believe something was said about the patient not being a proper subject for the Bossi dilator.

Dr. Zinke.—This girl was seventeen years of age, just pregnant, so that there could be no cicatrization.

Dr. Elbrecht.—I desire to invite attention to transverse incisions. In three or four such cases I have had good results. The success of these incisions was impressed upon me deeply in my first experience with cervical cicatrices. The patient, a negro, in my out-clinic service, had been in labor some twelve hours before I was called, which was at 3 a.m. The cervix, thick and hard, was dilated to the diameter of a quarter dollar, varied from three-quarters of an inch to an inch in thickness, and was unyielding. At the early hour in the morning I did not have with me the outfit that I wanted, hence I left a physician in charge of the case, and about seven o'clock in the morning I was telephoned that the patient had uterine inertia, a condition that had existed for two hours. I returned about eight o'clock for the purpose of determining the patient's condition and found that she had been sent to the City Hospital in an ambulance, during the absence of the assistant physician at breakfast. Her pains returned during his absence, and the family became alarmed. While in the City Hospital she had uterine inertia again, and was put to bed to await further developments. Early the next morning her pains came on again and, after having four or five when there was a complete annular detachment of the cervix, spontaneous delivery, and the baby was out on the bed before the nurse could reach the patient. If I had resorted to Dührssen's incisions at the proper time, I am confident the woman would have been delivered without these complications.

I have had one case which I considered typical and suitable for the Bossi dilator—namely, a case of eclampsia. The woman was refused admittance at three hospitals; she had been in the hands of four or five different physicians; she had about one-half per cent. of albumin in her urine; had eclamptic twitchings, and amblyopia. She was highly nervous, could not sleep, and was admitted to the hospital during her eighth month. She was uncertain about this herself, but physical examination showed that she was nearing term. I watched her for eight or ten days, satisfying myself that the albumin was constant in the urine. She had puffy eyelids, and all the symptoms of a well-marked case of nephritis. I put her on a rigid milk diet all this time,

when I decided to use the Bossi dilator to produce premature labor. I sent to Dr. Schwarz for the instrument, his being the only one in town at that time. I intended to use it as conservatively as any of us would in using such an instrument the first time, giving plenty of time to dilate the cervix; but, unfortunately, three or four minutes after I began dilating there was a profuse hemorrhage. I pulled the instrument out and found the cervix perfectly intact, but discovered that I was dealing with a marginal placenta previa. I felt compelled to go on dilating, as I was afraid to trust to the natural completion of labor. Therefore I introduced the dilator again and completed delivery in eleven minutes from the time I began. Mother and baby were saved, but a bad unilateral cervical laceration resulted, which I repaired at once.

The woman lived for fifteen days, during which time she had a high temperature. A typical toxemia developed from gangrene which set in at the site of the cervical laceration and extended over the entire mucous surface of the uterus. She had no septicemia, this being proved conclusively by making two cultures from the blood—one by removing a drop of blood, and the other tapping the basilic vein and securing 4 to 6 ounces of blood in 16 ounces of bouillon, there being no growth in either instance. By this latter method a growth may be obtained even when there are comparatively few germs in the circulation. I did this twice and supplanted more than the amounts withdrawn by normal saline solution, in the hope thus to help out her kidneys. As indicating the bad condition of her kidneys, I may mention that in spite of all precautions she had vicious bed sores in a few days. Post-mortem examination showed that the cervical tear did not extend higher than the cervix, but the entire uterine mucosa was gangrenous, it being a typical case of toxemia resulting from gangrenous sapremia.

The cases in which I have tried cervical incisons all recovered without any interruption. I feel sure that the majority of conditions requiring these incisions are not recognized. Everyone hestitates to do too much, hence if we have a case of prolonged labor and know the cervix is hard, we will try to soften it by all the means at our command. But I have seen neglected cases in the practice of others, if I may be permitted so to speak, in which occurred severe cervical lacerations. This experience has made me partial to cervical incisions.

In spite, however, of what has been said with reference to the Bossi dilator, I believe it has a sphere of usefulness. In the experience of Dr. Schwarz it was successful. He had more time; his case was more favorable. With this instrument you can make the dilatation more gradual. I do not believe it should be used in cases of placenta previa, it being entirely out of place in that condition. I think the tampon is better when any delay is admissible and I am decidedly opposed to Cesarean section in cases of placenta previa.

Dr. Albert Goldspohn, Chicago.—I am not able to contribute anything from actual experience with regard to vaginal incision, and therefore I would refrain from offering judgment on the merits of Cesarean section. However, I think Dr. Zinke takes rather an extreme view. I think Dührssen's vaginal incision answers well in certain cases; but I would like to speak a word or two in favor of symphyseotomy in some conditions.

I was once called about three o'clock in the morning supposedly to deliver a creature that was most grossly neglected and abused by sins of omission and commission, so that I am satisfied I could not have saved her life by Cesarean section, but by symphyseotomy I did save the life of that woman. I think symphyseotomy ought not to be forgotten in certain cases.

Dr. J. Henry Carstens, Detroit.—Dr. Zinke has presented such an excellent paper, one which covers the ground so thoroughly and systematically, that I can add very little of interest to the subject. There are a few points, however, on which I may disagree with him, which I will proceed to state.

It is a singular thing to me how very anxious some practitioners are to dilate the cervix. I have seen them use rubber dilators, Barnes's dilators, dilators of all kinds in working around the uterus at intervals of a day or two, finally sending for someone else, who has the greatest trouble to get the uterus open.

When engaged in the practice of obstetrics I very often saw what I called neurotic women, and among the swamps of Michigan malarial toxemia manifests itself in this way. It assumes the form of a neuralgia and comes on at certain intervals, either attacking the patient in the head, the sciatic nerve, the intercostal nerves, or the pain may be referable to the uterus lasting sometimes two or three days. At a certain hour, they will have pain. Sometimes the pain may start at seven o'clock in the evening; the next day it may begin at eight or nine, gradually getting worse, and finally it may come on at eleven o'clock at night. The general practitioner being misled concludes that the woman is in labor. I told one such woman that she was not in labor, whereupon she laughed at me and said, "I guess I know; I have had four or five children, and you have not had any, and therefore you do not know." I told that woman that I was a professor of obstetrics, and I ought to know whether she was in labor or not. I compared the time and informed her that it would be six weeks before she would reach term. I gave this woman quinine and very soon her pains ceased, and she went on to term.

I do not wish to convey the impression that all of these cases should be let alone. On the contrary, many times there is occasion for manual interference.

With regard to rubber bags, dilators, and the like, it is difficult to dilate a uterus before the right time, and it is this I would warn against. If you introduce a dilator you may bring on labor artificially. As a rule, in premature labor it takes longer for the dilatation of the cervix than at term, and it is useless to begin

dilating before conditions warrant it. In the German clinics a woman may be in labor five or six days or a week before they interfere. The pains may come on and stop, and come on again, and unless there is a placenta previa or special indication, they let nature take its course. We are usually in too great a hurry, and as a consequence we get tears of the cervix and other injuries.

As far as placenta previa is concerned, and we are discussing it only incidentally, we can dilate with the finger sufficiently, introducing two fingers and turning, and this I consider the best way to treat a case of placenta previa. I reported at one time quite a number of cases of placenta previa treated in this manner. I admit that there may be an exceptional case where Cesarean section is indicated, but I think it is rarely needed in placenta previa. These dilators may sometimes be used in cases of placenta previa simply to dilate sufficiently to permit the introduction of two fingers to make use of Braxton Hicks's version, bringing down a foot, and then the delivery may be left to nature.

Dr. Ross thinks we will resort to Cesarean section more frequently in the future than we have in the past. I do not think we ought to do so, and while I think there are certain well marked indications for Cesarean section, such as a small pelvis, etc., yet for cases of puerperal eclampsia, or placenta previa, I do not think we should do this operation very often. There may be exceptional cases where we are justified in performing it. For example, take a woman who is near the climacteric, who is anxious to have a child, and whose time for bearing children is almost at an end, if the life of that child can be saved by it, I think we are justified in performing Cesarean section, because in the hands of a skilful man there is no more danger attached to it than a high forceps operation. These, however, are the exceptional cases.

Dr. Eugene J. Brown, Stanford, Ky. (by invitation).—I only wish to make a remark in regard to the statement of Dr. Ross. In this day of aseptic surgery, with the results of mechanical and manual dilatation it seems to me that abdominal Cesarean section will become more popular in well selected cases. I have no doubt that the lives of more mothers and children will be saved through this operation than by other methods.

I had the opportunity of witnessing the operation referred to by Dr. Zinke, performed in this instance by Dr. Deaver for placenta previa. I was impressed with the simplicity of the operation. It was quickly and easily done, with no additional shock or disturbance to the mother or child. I have had no experience with the Bossi dilator, but the manual method is too slow for the good of the patient, and tiresome for the operator. I have performed the Dührssen vaginal Cesarean section only once with perfect satisfaction to myself and patient.

Dr. M. W. Myer, Columbia.—I do not know why I should

be called upon to discuss this paper, but I should like to say a few words in regard to several points that have been brought up this morning, and first in regard to the Bossi dilator.

As to the case which Dr. Zinke reports, while I admit there are a great many men who use the Bossi dilator and who recommend its use in placenta previa, there are those who are not so radical in the matter and regard the Bossi dilator as an instrument not to be used in these cases. In fact, we have to go back to the old methods of delivery in cases of placenta previa that permit delay, and that is the use of tampons. We accomplish more with them than we can in any other way.

The point made by the essayist that we simply disregard the life of the child in these cases is not true. I will admit that if in every case of placenta previa Dr. Zinke will do abdominal Cesarean section, he will have more living children, at least for a short time; for those who have to do with early premature children know the percentage of those they are able to keep alive is small. Occasionally there may be a case where an abdominal Cesarean section is indicated on the part of the mother, even in placenta previa. I do not think any man dare be so radical as to deny this, but to lay it down as a rule in cases of placenta previa I do not think is wise.

With reference to eclampsia, I asked Dr. Carstens at a previous session in regard to the condition of the cervix. I asked him if he would disregard the condition of the cervix and perform vaginal Cesarean section, and I understood him to say that he would in a severe case of eclampsia, even where the os was in the condition described and illustrated by him on the blackboard. Now, I do not believe he will find many men who will agree with him. Suppose, for example, we have a case in which the cervix is completely effaced; the external os is not dilated completely. In such a condition, certainly the Bossi dilator or even manual dilatation deserves a trial. I have also had experience with the Bossi dilator in one patient. In this instance the cervix was not effaced; the use of the dilator was not at all satisfactory, simply because I found the prongs too short to reach the internal os. But I do not think from a report of one or two cases, we can say that the instrument should or should not be given up.

Dr. Ross agreed with Dr. Zinke in regard to treating these cases by abdominal Cesarean section. Dr. Ross reported to us, however, three cases, all of which, in my opinion, spoke against abdominal Cesarean section. In the first place, he performed abdominal Cesarean section in a case where the child was not living; in another case where the child was not viable. I do not recall exactly the details of the third case, except to know that the child either died a short time after delivery or was dead at the time of delivery. We all know that in these cases where hemorrhage is so severe, as in cases of placenta previa, that if the woman cannot be delivered at once, Cesarean section is not going to help, because by the time this operation is performed

the child has already succumbed; while by tamponing we can control hemorrhage, let the cervix dilate for itself, and then the child can be delivered.

Dr. Ross.—May I correct an impression which seems to prevail, Mr. President?

The President.—You may.

Dr. Ross.—In my three cases Cesarean section was not done for placenta previa.

Dr. Myer.—I accept the correction; but still I understood that the indication for abdominal Cesarean section was not present. In the first case the child was dead.

Dr. Ross.—The pelvis was very much contracted and the patient was a dwarf.

Dr. Myer.—If the pelvis was so contracted that the child could not be delivered by craniotomy, then I concede the propriety of the operation.

Dr. Ross.—The second case was one of fibroid tumor obstructing delivery and nothing could be done without the removal of the tumor. The third case was one of pelvic contraction where delivery could not be effected in the usual way.

Dr. Myer.—I misunderstood Dr. Ross. His cases were for absolute indication and not relative, which latter is being discussed.

I simply want to say a word or two more in regard to manual dilatation. I think Dr. Zinke is correct in saying that manual dilatation is resorted to in cases where it is not justifiable. It is used, first of all, by general practitioners more than by obstetricians, and I have seen cases in which manual dilatation was employed where the physician did not have with him even a hand-brush, so that proper asepsis could not be carried out.

I remember another case in which manual dilatation was attempted, the external os was dilated for three fingers, and at the internal os I found it was impossible to pass my fingers for several inches between the sphincter and the wall of the uterus. In dilating, the practitioner had disregarded entirely the internal os and was dilating the external os, and tearing the internal sphincter from its attachment to the uterine wall. While dilatation should be employed in cases in which we can obtain results, still I think a great deal should be said against its promiscuous use.

Dr. Zinke (closing the discussion).—I thank the members of the association very much for the interest they have manifested in the paper presented. Whatever I have said or written in the past on this subject as well as in the paper presented to-day, comes from a motive simply to do good. The object is to get rid, if possible, in the future of certain methods of practice in obstetrics, which, in the past, have been the means of causing serious consequences. I sincerely believe there is room for im-

provement in this particular branch in the practice of obstetrics in spite of all that has been said to the contrary. The opposition I have encountered in my efforts to better the treatment in accouchement forcé comes from two sources. The one is the young physician, who still labors under the influences and prejudices of his teachers; the other is the old practitioner of fixed habits of treatment. I do not claim for myself that I am absolutely right in what I have said. It is possible I am mistaken, but I must have the proof of it before I can change my opinion. I also know from personal experience that it takes years to emancipate oneself from the opinions and prejudices imbibed as a student. Because of this we follow so easily, and many times persistently, the recommendations of men of reputation and high standing in the profession. And the faith in, and the value of, many authors seems to increase in proportion to the distance they live away from us.

The only pertinent remark my friend Dr. Carstens made was his reference to the Champetier de Ribes bag. If he will read my paper carefully he will see that I am not a great admirer of this instrument. I have not used one for years; but I recognize that it has an occasional place.

As to the remarks made by Dr. Schwarz, he is in the same position that many of the members were in when I read my first paper on the justification of Cesarean section for placenta previa two years ago. You all know from personal experience (because nearly all of you are teachers) that when you prepare a lecture for your students, you spend many hours in its preparation. You never expect the men who listen to that lecture to grasp at once every detail of the argument presented; it is impossible. The same it is with what I have said to-day. After you have read my paper, you will say to me, as you did a year ago: "Doctor, we did not understand you," or "we have not read your paper fully," and "that is the reason why we talked and argued as we did." Dr. Elbrecht, as well as Dr. Schwarz and many others, have mistaken my position entirely when they place me in the position of saying I recommend Cesarean section for every case of placenta previa. Nothing, in reality, was ever farther from my thoughts.

I even stated that Cesarean section will rarely be necessary. The majority of cases of placenta previa are those of the lateral and marginal varieties; they do not require Cesarean section. But when a case of central implantation presents itself, the cervix unobliterated and not very soft in connection with a malpresentation, this operation will give the best result for both mother and child. I have known men to work for hours to obtain dilatation, successively with the hand, the balloon, as well as with steel dilators, and fail.

And yet this is the practice prescribed in the textbooks of to-day. The practitioner follows first one rule and, failing, he tries another. This is the present management of these cases,

not alone by general practitioners but by the best of obstetricians. Because this method of procedure is continually being taught, the men who are graduated every year can see no propriety for Cesarean section in some cases of placenta previa. And this, too, is the reason you see pictured to-day in the works of Leopold and others, frozen sections made of women with the child partially delivered after turning in cases of placenta previa, dying on their way to the hospital. This is the result of the teaching of to-day, not only in this country but abroad. I say there is relief for some of these cases. Here is the situation: when a man is confronted with a case of this kind, he must study not only the condition of his patient, but the entire character of the case. The general practitioner, like the specialist in obstetrics, should know all about his patient. He should know her general condition, her build; know the position of the child and the location of the placenta. All of this can be ascertained, more or less accurately, in the majority of instances. When one discovers there is trouble ahead, let him transfer the patient to a hospital, if he can, or call to his aid one who is skilled and experienced in the treatment of these cases. If he can do neither of these, then, of course, the outlook for the patient is bad.

REMOVAL BY VAGINAL CYSTOTOMY OF SKELETON OF ECTOPIC FETUS ULCERATING INTO BLADDER.

By WILLIAM D. HAGGARD, M.D.,
NASHVILLE.

THE specimens I herewith present will prove of interest, as showing the aberrations of ectopic pregnancy, which in itself is an aberrant phenomenon. The history of the case is as follows:

Mrs. W., white, aged 31, the mother of two children aged 14 and 11, presumed herself to be normally pregnant, and expected to be confined August 30, 1900. There was a continuous flow from the uterus for the first three months, and she had pain in the bladder and straining on micturition from the beginning of conception; but there was no history of rupture of the ectopic gestation.

On June 20, at six and one-half months, while lying down she felt motion for the last time. It had previously been unusually vigorous, more so than with her two other children. She was confined to her bed for three or four weeks with pain. She had more or less pain for about a year and she was a semi-invalid from weakness, pain and tenderness in the lower abdomen. The enlargement of the abdomen had gradually, but appreciably, diminished. At the end of a year pus first made its appearance in the urine, and the first day after getting up a bone, which was a fetal vertebra, made its exit through the urethra.

During the second year she was able to attend to all household duties, but occasionally would have several days of unusual bladder irritation and pass a bone through the urethra. In the last four months she passed all the long bones. Sometimes one would catch in the urethra, and she would get hold of the free end and gradually pull it out. Commonly, several days of comparative comfort would elapse before another one would set up irritation, and finally escape. In this way she passed eighty-five bones (Fig. I.)

Six weeks before admission to the infirmary she felt the discomfort of another bone, and has not been free from it since, nor

Fig. 1. Bones of ectopic fetus passed per urethram.

has any bone passed. She has been in bed two weeks with pain in the lower abdomen, which is very intense on motion.

Upon examination the bladder is exquisitely tender, crepitates

upon pressure, the bones being covered with phosphatic deposit. She describes a small lump to the right of the median line and low down, the remains of the once six and one-half months' en-

Fig. 2. Remainder of skeleton removed from bladder.

largement, but this cannot be made out, on account of tenderness. The urine is loaded with pus and phosphates, and exceedingly offensive. Curiously enough, she does not void it oftener than every six or eight hours. Micturition is very painful, and after the urine is voided free pus is often expressed.

Operation.—Under ether, October 31, 1902, the index finger was made to enter the urethra without much effort and detected numerous bones and, communicating with the bladder, an opening into a lesser chamber on its right upper surface was discovered. There was a mass on the right to be made out bimanually, about the size of a small orange, which communicated with the bladder, much as a bow window with partially-drawn curtains does with a room.

The uterus was retroverted, and not much enlarged. The bones were much too large to be removed through the urethra, and an incision was made into the vesicovaginal septum. The finger in the bladder through the urethra located the bone, and it was withdrawn with a forceps introduced through the incision. In this way fifty-two bones were removed. (Fig. II.)

Some were imbedded in granulation tissue in the remains of the ectopic sac and were removed with difficulty. The sac and bladder were frequently irrigated and an artificial vesicovaginal fistula established for drainage, after Emmet's method of sewing the vaginal mucosa to that of the bladder by silver wire sutures.

The operation, while tedious, was not attended with shock. The bladder was irrigated twice daily afterward with boric acid solution, and the urine soon became normal. At the end of six weeks the artificial vesicovaginal fistula was closed successfully by silver wire suture.

A cystoscopic examination with the Bransford Lewis ureter cystoscope revealed a healthy mucosa, and at the site of the former communication only a slight reddish depression was seen. The ureteral catheter failed to disclose any depth to this aperture. The patient was discharged eight weeks from operation, and has remained well since that time.

DISCUSSION.

Dr. Frank A. Glasgow, St. Louis (by invitation).—The case reported by Dr. Haggard is similar in many respects to one which came under my observation about ten years ago, it being a case

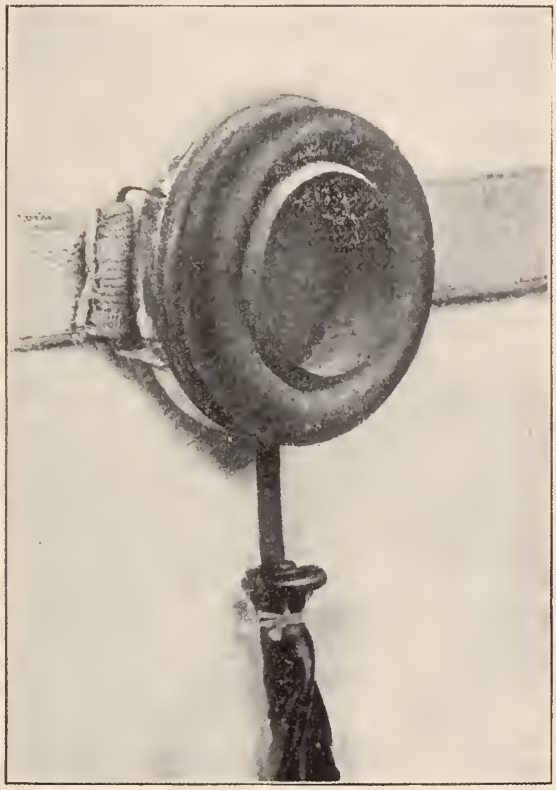
of pregnancy of about five months. While I did not get a complete history of extrauterine pregnancy, there was enough to lead me to believe that such was the condition present. There was a large mass to the left of the uterus, and that was the difference between Dr. Haggard's case and mine. This case went on for a year and a half from the time the symptoms of pregnancy abated. The woman had become enormously fleshy; she weighed between two hundred and fifty and three hundred pounds. Indeed, she was the largest woman I ever had to deal with surgically, and I need not say that the operation was very difficult to make. I found the fetus so decomposed and offensive that I could hardly stay near the patient. Some of the decomposed brain was found, but the bones were loose, separated, and I removed everything I could.

Dr. Haggard suggested a counter opening for drainage, and I believe it would be better to do so in such cases whenever it is possible, because some of the small bones will be embedded in the tissues; we cannot remove them, and one single bone may keep up a discharge and prevent the wound from closing. The woman recovered, but there was a sinus. I packed, and some months afterward I dilated the fistulous tract, introduced a pair of forceps, and removed a small bone, after which the sinus closed. The woman had no further trouble. She died about a year and a half ago—I do not know from what cause. If I had operated from below through the vagina, making a large opening, the sinus would not have occurred. As I have said, the case was almost exactly similar to the one cited by Dr. Haggard, but the result was not as good. I desire to accentuate the fact that we cannot be too careful in draining these cases. We should make a large counter opening below, in order to prevent the retention of small bones. If such conditions are allowed to go on, there will be ulceration into the rectum or bladder or vagina, complicating them very much.

A BILE-FISTULA PAD.

By H. W. LONGYEAR,
DETROIT.

I HAVE here an appliance that may help some of you as it did me. In cases of biliary fistula from which bile has flowed purposely or otherwise for some months, there is great difficulty, as is well



Dr. Longyear's bile-fistula pad.

known, in keeping the patient dry. I had a case of biliary fistula of six months' duration, which became very uncomfortable for the patient owing to constant saturation of dressing and clothing.

The pad is designed to collect and convey the bile into a receptacle. It consists of an inflated rubber ring with a thin edge of rubber running around inside of it, the whole being covered over the top with thin rubber sheeting. An opening and tube in its lower side serves to convey the bile into the rubber bag, which can be placed in a pocket in the clothing. The pad is held in place by an elastic web band, which is attached to the silver rim that runs around the top and outer margin of the pad.

The feature peculiar to this instrument, and the one that makes it useful for the purpose intended, is the thin flange inside the inflated ring. This being held closely in contact with the skin directs the bile immediately to the dependent part of the pad where the tube is inserted to carry the fluid into the bag. The inflated ring prevents the edge from cutting into the skin.

The instrument can be procured of Hartz & Co., Detroit.

GUNSHOT WOUND OF THE ABDOMEN INVOLVING THE HIP JOINT. REPORT OF A CASE WITH REMARKS.

By L. H. LAIDLEY, M.D.,
ST. LOUIS.

I PRESENT herewith a patient received at the Exposition Emergency Hospital, together with the history of the case, which is as follows:

Ernest Morgan, aged 18, a visitor and looker-on, of remarkably vigorous constitution and exceptional health, was shot in the abdomen during a brawl on the Pike at the St. Louis World's Fair, June 18, 1904. He was admitted to the Emergency Hospital on the grounds, and within one hour an abdominal section was made. Upon examination, it was found that the ball had passed through the abdominal wall near McBurney's Point, passing inward and slightly downward. On examining the viscera, it was found that the ball had penetrated the cecum, making two openings, one in front and another behind, passing down into the soft parts lining the pelvis. These were closed up by Lembert sutures, the abdomen cleansed of large quantities of blood and escaping contents of the bowel, and the incision closed with through-and-through sutures. The patient left the table within an hour under very favorable circumstances, the pulse being 72 and temperature normal. The next morning he complained of great pain in the hip joint, and was unable to move that limb. For ten days his condition was favorable, when he gave evidence of disturbance, especially about the joint. Chills and fever and increased pain suggested an examination with the X-ray, which would have been used earlier were it not for the fact that we had not been provided with such an appliance up to that time. On July 11, after the bullet was removed, an incision was made over the joint, disclosing the presence of pus outside of the joint, which was opened, showing that all of the head of the bone within the capsule was entirely destroyed and fractured; likewise, the acetabulum was fractured and necrosed; following up the course of the

cavity made by the bullet, the missile was removed, finding it lodged in the upper and outer margin of the cavity of the socket. The necrosed portions of this bone were chiseled out, and with a sharp curette were entirely cleansed; likewise, the dead portion of the head of the femur was removed, the cavity packed with gauze and thoroughly drained. He afterward showed evidences of sepsis, which prompted me, on the 22nd of July, to reopen the wound, wash out the cavity and introduce further drains. These are continually used up to the present time. About three weeks ago he manifested evidence of acute nephritis. Upon examination, it was found that he had a large quantity of albumin, with casts, which was evidently due to toxemia, as found in scarlet fever. Since that time, by repeated cleansing of the cavity and thorough drainage, these evidences are disappearing, leaving him in a fair condition for recovery. The subsequent treatment will be to free the cavity and its surrounding structures of all suppuration, and by that means we hope to restore our patient to his normal health, probably leaving him with a shortening of the limb, and perchance a degree of ankylosis.

Gunshot wounds of the hip joint are not very common. In the statistics of the Franco-Prussian War, 1870-71, there were only one hundred and twenty-eight cases. In the recent Spanish-American and South African Wars Kuttner and Makins saw only one case each of small caliber wounds of the hip joint. Most of the wounds were from before backwards, or in the reverse direction. The damage to the joint varies from small penetration of the capsule without injury to the joint surfaces, fracture of the head of the greater or lesser trochanter, or a simple penetrating wound of the neck, to very extensive comminuted fracture of the entire upper end of the femur and joint cavity. If the bullet penetrates the acetabulum, it enters the pelvis and may injure the viscera, the bladder or rectum. The bullet may enter the hip joint through the abdomen or pelvis. Diagnosis of the wounds of the hip joint may be very difficult. The X-ray, however, makes it much easier at the present time. Usually, the direction of the wound, as well as the attitude of the patient at the time of the injury, should guide the surgeon. If the capsule alone is involved, or the damage to the joint is slight, the symptoms in recent cases are often atypical. The traumatic inflammation usually begins in the second week after the injury. If the inflammation appears very light it may have been transmitted, assuming that the joint was injured primarily and that the bullet

injured only the soft parts. In the absence of a wound of exit, the diagnosis is often possible, if the symptoms of comminution of the neck are present, namely, outward rotation, shortening, crepitus, etc. Probing or manipulation strictly should be avoided. The prognosis of gunshot wounds of the hip joint has been very bad, the chief danger being that of infection, as its development is facilitated by the hidden position of the joint and the discharge of pus prevented by the thick covering of the soft parts. The prospect of recovery diminishes with the severity of the injury and complications. Of the 128 gunshot wounds of the hip in the Franco-Prussian War, during the pre-antiseptic period 102 died, mainly of pyemia. The 4 cases amputated were fatal, and of the 27 resections, 25 were fatal. Of the 97 non-operated and treated conservatively, 73 died. The two cases of Kuttner and Makins, mentioned above, which were treated conservatively, recovered. Ankylosis is the almost uniform result of gunshot wounds of the hip, usually with more or less shortening of the limb. The period of recovery averages about six months.

In the treatment of these cases we recall the well established principle that, unless the ball disturbs the patient, it should not be removed. In the case noted above this rule was adhered to until circumstances forced me to act in the removal of the cause producing the disturbance at the hip joint.

REPORT OF A CASE OF STRANGULATED UMBILICAL HERNIA IN WHICH CECUM, APPENDIX, ASCENDING AND TRANSVERSE COLON WERE FOUND GANGRENOUS IN SAC—ARTIFICIAL ANUS MADE AT PRIMARY OPERATION FOLLOWED TEN WEEKS LATER BY DOUBLE RESECTION TO RESTORE INTESTINAL CONTINUITY.

By JOHN YOUNG BROWN, M.D.,
ST. LOUIS.

Until Mayo devised his vertical overlapping operation, the surgery of large, uncomplicated umbilical hernia was far from satisfactory. In view of the high mortality in uncomplicated cases of this character, the following complicated case is of great interest:

Mattie T., the patient I wished to show you, was admitted to the St. Louis City Hospital March 7, 1904. She is 47 years old, married, mother of ten children. Family history good. Fourteen years prior to admission she noticed, after her first confinement, a protrusion at the umbilical ring. With each succeeding pregnancy the hernia grew larger. It gave her little trouble, and, with the aid of an abdominal binder, which she wore continually, she suffered comparatively no inconvenience. Eighteen hours before coming to the hospital she was seized with great pain, vomiting, and the usual symptoms of strangulation. A physician was called, who attempted forcible taxis. Failing in this, the usual hot packs were applied. She grew worse, as a natural sequence of this treatment, and when seen by me at 7 P. M. I found the following:

A large, oval umbilical hernia, the size of an adult's head, tightly constricted at its base. The skin over the hernia was blistered from the hot applications used, and the general condition of the patient was bad. She was immeditely prepared for operation.

Operation.—Transverse elliptical incisions were made, surrounding the umbilicus and hernia; these were deepened to the base of the hernial protrusion, it being my intention to do a radical Mayo operation if conditions permitted. The surfaces of the aponeurotic structure were carefully cleared in all directions from

Fig. 1. Contents of sac.

the neck of the sac; the skin covering the sac was dissected back and the sac opened. On opening the sac, five or six ounces of offensive, dark, bloody serum gushed out. The sac was found to contain about two inches of ileum, the appendix, the cecum, ascending and transverse colon, all of which I found black, fetid and gangrenous, the constriction being at the umbilical ring.

Without disturbing the adhesions of bowel to peritoneum at the neck of the sac, I split the umbilical ring external to the sac; this relieved the constriction, and I then ran my scissors through the large and small bowel, leaving an artificial anus at the distal end of the ileum, through which gas and fecal matter in large quantities began to flow immediately. A moist dressing was applied, the patient's stomach was washed, and she was returned to bed.

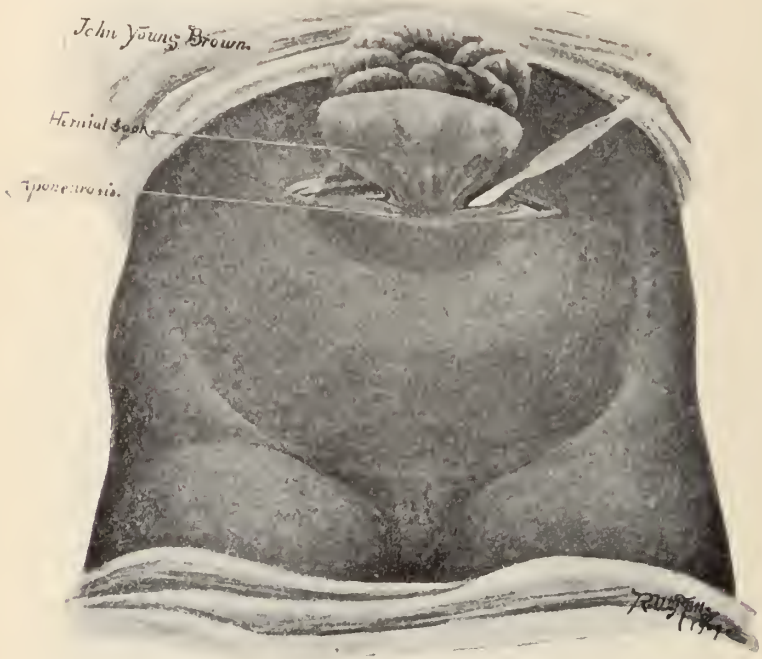


Fig. 2. Method of relieving constriction.

Figure I. shows the contents of the sac. Figure II. shows the method of relieving the constriction by cutting through the umbilical ring. The patient slowly reacted; the gangrenous bowel gradually came away; the wound contracted, leaving fixed in the umbilical ring the distal end of the ileum, through which was discharged fecal matter, and the opening which marked the beginning of the descending colon. This is shown in figure III. From this cut it will be seen that the descending colon, sigmoid and rectum were entirely out of commission; through a rectal tube a through-and-through irrigation of rectum, sigmoid

and colon could be made, the irrigation fluid flowing freely from below upward and out through the opening in the colon at the umbilicus.

Ten weeks after the primary operation I restored the intestinal continuity as follows: owing to the large stump of mesentery fixed in ring, I did not deem it advisable to attempt a direct anastomosis by liberating adhesions and resecting at the hernial site.

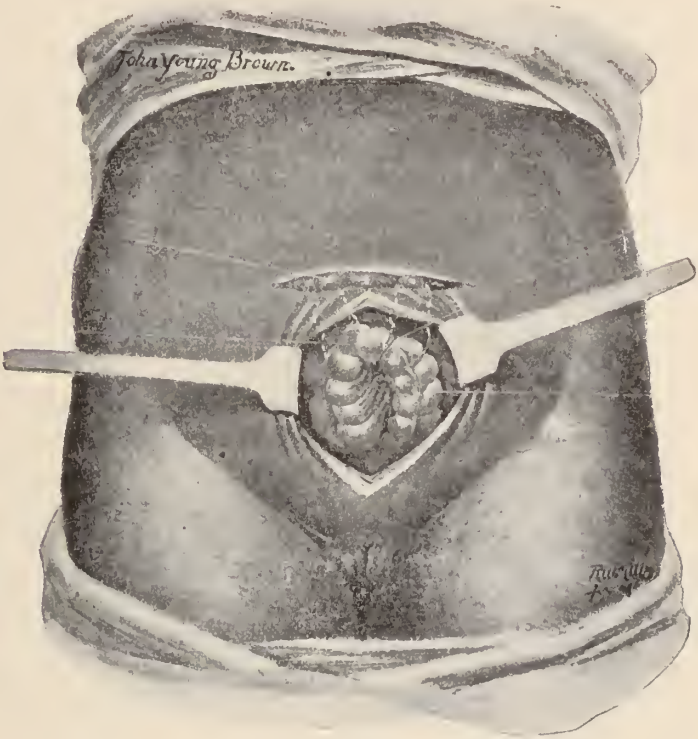


Fig. 3. Distal end of ileum fixed in umbilical ring.

I therefore, after carefully cleansing and sealing the two openings of bowel at the umbilical ring with gauze and collodion, opened the abdomen below the umbilicus through a median incision. The ileum was resected close up to its attachment to the ring, the portion of bowel distal to the incision was closed with a purse-string suture, reinforced by a few Lembert stitches; the colon was then resected at its juncture with the sigmoid; the colon was then closed in the same manner as was the ileum. An end-to-end anastomosis was then made between ileum and sigmoid, the anas-

tomosis being done with the Murphy button. The abdomen was closed in layers. The materials used for closure were catgut for peritoneum, muscle and fascia; retention suture of silkworm for skin, fascia and muscle; horsehair for skin. An examination of figure III will show the condition of the viscera after the completion of the anastomosis. Note the pouch of ileum and descending colon, shown by dotted lines. The patient made an easy convalescence after this operation. The rectum, which had been out of commission for so long, took up its work in twelve hours. The button was passed on the nineteenth day.

At the completion of the second operation there were left the two blind pouches of bowel to be looked after. Cut No. III shows the pouches of ileum and colon, the dotted line marking the gut. I assumed that nature would evert these pouches, and that they could be removed later. I, therefore, sent the patient home for a month, at the end of which time she returned. As expected, the bowel on both sides had turned "inside out." The bottom of either pouch was seized with a forceps and the gut clamped and removed. The result was excellent, and there is now left only a small amount of mucosa, which can readily be removed with cautery or carbolic acid.

This case brings up a number of interesting points in regard to the surgical treatment of hernia. First in importance is the question of the management of bowel of doubtful integrity found in a hernial sac. I am convinced that in all cases where it is possible, primary resection should be done. Recently I have operated on five cases of strangulated hernia, three inguinal and two femoral. In all of these primary resection was done for gangrenous bowel through a supplementary abdominal incision, followed by a radical operation at the hernial site. Of the five cases four recovered and one died. The anastomosis was made end to end in each case, and with the button.

The supplementary incision affords many advantages over the old method of resecting at the hernial site and, while I am well aware that serious theoretical objections can be offered to it, the results I have obtained speak eloquently in its favor. I shall shortly present this work in full.

Regarding the radical operation for umbilical hernia, until I adopted the Mayo method my mortality was high, my patients not dying from sepsis, but from post-operative respiratory complications. Within the last year I have done the vertical overlapping operation nine times with perfect results and no mortality.

DISCUSSION.

Dr. William Warren Potter, Buffalo.—The essayist has presented a subject of considerable interest to me, from the fact that I have had some experience with strangulated umbilical hernia. Dr. Brown has accentuated a striking feature of the subject—namely, the great mortality attending this variety of hernia.

A French surgeon, M. Demarquay, some years ago made a study of this subject, not only as related to his own cases, but to those of other operators as well, and his statistics indicated a mortality of fifty per cent. for all operators. The mortality tables show a reduction in recent years, due probably in part to the introduction of new methods, and in other part to greater care in the preparation for such operations.

The majority of umbilical hernias occur in women, the ratio being more than four to one. Why it is, I know not, unless it be that repeated pregnancies weaken the abdominal walls. At all events, such has been the observation of statisticians.

My first experience with strangulated umbilical hernia was in 1877, when I was summoned twenty-five miles into the country to see such a case. Arriving about half-past ten in the evening, I found a woman, thirty-nine years old, in agonizing distress, having an old umbilical hernia that became incarcerated about seven o'clock on the morning of the same day. The physician in attendance had tried taxis, administered morphine hypodermatically, and, indeed, employed the usual methods without success.

The hernial tumor was a turnip-shaped protrusion through the abdomen at the umbilicus, embedded in a thick environment of fat. Palliative measures were continued during the night, and at daylight I operated. In opening the abdomen and releasing the constriction, it was found that a portion of the liver had thrust itself through the opening, together with omentum and bowel. The section of incarcerated liver was so tightly constricted, the impression, after it was released, was left that it had been tightly encircled with a stout string.

After the operation the symptoms subsided, and the woman made a prompt recovery. She vomited large quantities of bile before and after the operation, which I attributed to the constriction of the portion of the liver found in the sac. I saw her some years afterward, but there had been at that time no return of the hernia.

The protrusion is not usually through the umbilical ring, but above or below the navel. Pregnancy sometimes weakens the abdominal walls sufficiently to predispose to this form of hernia, and obesity is an etiological factor to be reckoned with. Modern operative methods and asepsis, as already remarked, have modified the mortality ratio, but not as much as they have in almost all other abdominal operations.

Dr. D. Tod Gilliam, Columbus.—I have not had the experi-

ence in this form of hernia that some of those present, I dare say, have been favored with, hence my remarks will be brief. I would ask Dr. Brown if the knuckle of ileum of which he made the artificial anus was in a gangrenous condition, or had good bowel in it? Did you cut into the good bowel?

Dr. Brown.—The whole mass was lifted up near the cecum and the ileum was pulled up; a portion of the ileum was gangrenous; there was the large ileum in the hernial sac; I split the aponeurosis external to the sac, relieving the constriction about the neck of the sac, ran my scissors through the gut, and put the patient to bed.

Dr. Gilliam.—This case is monumental. It is one of the remarkable cases on record, and I congratulate Dr. Brown most sincerely on his technic and on the result of the operation. He has shown himself to be a good surgeon, with splendid judgment. There are not many ideal methods for such an operation as this, but had he done the operation according to methods that are considered ideal he would doubtless have lost his patient.

I have had no experience with strangulated umbilical hernia, but I have had quite an extensive experience with the radical operation for umbilical hernia. I presume Dr. Brown, in quoting statistics, had reference to cases of strangulated umbilical hernia.

Dr. Brown.—I referred to large and uncomplicated umbilical hernias.

Dr. Gilliam.—My results have been different from the statistics quoted. I have had excellent results so far as life is concerned, in that I have not had a single death following an operation for umbilical hernia. But secondary results at my hands have not been good, because I have had recurrences. I have a patient in hospital now in which there are multiple projections of bowel and viscera.

Dr. Frank.—How large a gut have you found in the sac in your cases?

Dr. Gilliam.—I have found large ones, with omentum, gut, and other contents. I remember one case of femoral hernia I had that was immense, the largest recorded in the literature of the subject. It was thirty-six inches in circumference. I lost my patient. I could not get the hernial mass into the abdominal cavity. I finally opened the cavity and drew the intestines out on the abdomen, then with the utmost difficulty replaced them after cutting away the omentum, and tried to keep the bowels in, but they burst out through the hernial opening, and finally the patient died.

I desire to call attention to one point—namely, to anastomosis between the small and large bowel. Dr. Brown expressed great preference for end to end anastomosis. That is the method I have usually pursued in these cases, but I found that my patients complained a great deal, and after thinking about it for some time,

came to the conclusion that it was because of the fecal matter passing backward into the ileum. I then changed to end to lateral anastomosis, leaving a culdesac below, having a good-sized one there as a reservoir for the material that came out of the small bowel. I have made an end to side anastomosis and closed the end of the colon at this point (indicating on blackboard), which left a kind of reservoir for fecal matter to pass out of the small bowel, and by means of muscular action it closes this side valve, so to speak. There is much less after-trouble from this method than there is when one resorts to end to end anastomosis.

Dr. J. Henry Carstens, Detroit.—The Mayo operation is certainly a very good one in certain cases; at the same time, I have not had as much trouble as Dr. Brown. I feel like Dr. Gilliam about it; I have had reasonably good success, and as far as I can remember I have lost but one patient. The trouble with these patients is, they are nearly always fat, and in our work there is a lack of accurate adjustment. It is impossible to get accurate adjustment with the en masse ligature. It must be sewn in layers. By doing a flap splitting of the ring the tissues fishtail like, and when the raw surfaces are brought together and unite, the area of union is thicker and stronger than any other part. Then I have no rule. Sometimes I make the union side to side; sometimes from above to the lower part; sometimes obliquely. Sometimes part of the incision is sewed up in one direction and the other part in another. It depends on the shape of the opening. The lessening of tension is what is desirable.

I first close the peritoneum with fine catgut, No. 1, then the muscles, fascia, etc., with thick catgut, No. 3 or 4. The fat also is brought together with very fine catgut, which is not necessary, but prevents hollow spaces. The skin is also brought together with fine catgut. In exceptionally rare cases where the opening is very large, I use silver wire, weaving it across in various directions.

Dr. Robert T. Morris, New York.—The reason why umbilical hernia occurs more frequently in women is because they often have a diastasis of the rectus muscles, and we will find in most of our patients with enteroptosis, gastroptosis, and loose kidneys, diastasis of the rectus muscles. This accounts for the frequency of umbilical hernia.

In regard to the death rate, there are several factors to be considered, one of which is that we are working near the large sympathetic ganglia, and the death rate from operative procedures is largely in proportion to the shock to the large sympathetic ganglia. As an illustration, a patient will have more shock and distress from the passage of a small gallstone than she will have from the passage of a nine-pound baby. I do not quite understand the mortality from umbilical hernia, but have not looked up the statistics. I did not remember any death rate of my own from oper-

ating on umbilical hernias, but may have overlooked the precise facts. Certainly, if there has been mortality it has not been such as to attract my particular attention.

As to the strangulated ones, there were none with gangrene. I do not remember one with gangrene, but have operated on a great many such cases—at least several during the past year.

Dr. Brown made three or four points that I believe are of extreme saving importance. First, he opened the abdomen quickly and completed his operation quickly. He did expeditious work at the right moment. The tendency is to do too much in very much of our surgical work, and particularly is this true of the younger men and of men who work too much from textbook plans, rather than with their own mechanical sense and feelings. It was expeditious work, getting in and out of the abdomen, leaving the patient as nearly alone as possible, that saved the woman.

In regard to some of the technical questions, the matter of making a secondary incision at a distance from the point of adhesion is important. We are dealing with normal peritoneum, and normal endothelium that will give the strongest, the best and most complete repair. If we separate the bowel at the point of adhesion, we are doing so in a case in which connective tissue replacement has followed an injury to endothelium, and the connective tissue surfaces are not so ready to carry on repair. In the second place, the primary lymph chambers between the endothelial cells are not qualified to manage sepsis. They are closed. The connective tissue replacement closes the lymph chambers. These little canals are wide open at the point where Dr. Brown made his resection, capable of managing sepsis and carrying on repair in the best way. Guarding against infection at that point very carefully, it seems to me, is not of very much importance excepting in a general way. Most of us have noticed that where the peritoneum has been injured in the vicinity of a fistulous tract, even though the latter is several months old, there is a hyperleucocytosis that protects, and I wonder if any man here remembers a case in which he has had infection where he has soiled the normal peritoneum with fecal matter or bowel contents after an operation of this sort? I do not remember such an instance of infection, and I have had a good many cases. We have locally here a hyperleucocytosis ready to protect, and it does protect. I do not like to talk against extreme care, but as a matter of fact, we infect these patients, in spite of every precaution we can take, with colon bacillus. Millions of them get into the peritoneal cavity during a wide resection with all the precautions we may take, even in spite of all the splendid precautions Dr. Brown took, but apparently without doing harm.

In regard to the artificial opening, Dr. Brown happened to find the distal end of the ileum open, which gave a sufficient absorbing surface from the bowel for carrying on nutrition. But where we have had to deal with gangrene high up; where we have had to put a large part of the bowel out of commission, I have found that

predigested foods would carry on nutrition perfectly through the fistula. We can use sufficient amounts, so that the patient will enjoy reading a newspaper or smoking in bed, while feeding is being carried on through the fistula for the time being.

As to the pouches of bowel, Dr. Brown spoke of a prospective operation for resecting them. I do not like to take the responsibility of saying that in a case in which we have such large pouches the procedure which I employ will be a success, but I have used successfully in small pouches pure carbolic acid for sixty seconds, and then neutralizing it with alcohol completely. Pure carbolic acid will destroy the mucosa, practically all of the secreting surface, in sixty seconds, and the alcohol will neutralize the carbolic acid absolutely, so that its corrosive influence is averted at the desirable point. There will be a separation of the sloughing mucosa, but without damage, so far as my experience goes. I have destroyed a number of pouches lined with mucosa in this way very successfully, but I am free to say, not one so large as this. I would be inclined to take the part of the mucosa that is in sight that can be treated in this way, and we can in a short time, or in a few days, have granulation and connective tissue repair there. Of course, in a secreting surface left with mucosa we shall not get repair until that is all destroyed.

In regard to Mayo's operation, I read a description of it with a great deal of interest, but the operation I have employed has been successful so far as I know. It may be, it is like the description given in the *Centralblatt* for the cure of tertiary or secondary syphilis. The author described a method of injecting a salt of mercury beneath the skin; it was very painful and produced abscesses, but he said the patients were all cured immediately, because they did not return to his office. So this may be the way in which I have been successful in curing cases of umbilical hernia. However, so far as I know, a method which includes the idea that there is a wide diastasis of the rectus muscles to be repaired is the one to be carried in mind in these cases. I frequently make an incision six or seven inches long, or more, in a patient with a short abdomen; this incision will appear to be a very long one, and yet it gives one an opportunity of finding the margins of the rectus muscles, to bring them together over a long surface, and he is ready to repair the diastasis in that way. Repairing the diastasis in these cases has been, in my experience, very successful. Webster, of Chicago, brings together the muscles without cutting out the aponeurosis beneath, without opening the peritoneum, excepting at the point of the hernia, but I have really thought it best to take out practically all of the aponeurosis that is exposed by the diastasis, giving a very firm, close lining. But the point of importance is the length of incision, giving sufficient margin to rectus muscles to get a very long field of repair.

Dr. Herman E. Hayd, Buffalo.—Dr. Morris has appropriated all my ammunition. He has discussed Dr. Brown's paper most

satisfactorily. Every one of us is thankful to Dr. Brown for presenting the subject as completely as he did, and accentuating it by exhibiting the patient alive after the work he has done. I cannot understand why there should be a great mortality connected with cases of uncomplicated umbilical hernia. It has not been my experience. I do not believe, however, that the Mayo operation lessens mortality, because the dangers in these cases are, as Dr. Morris has said, due to the very intimate association of the operation with the great sympathetic ganglia; then, again, these hernias are usually seen in big, fat women, who do not take chloroform well. They die of pneumonia, and other complications, as the result of anesthesia.

Statistics in reference to the point which Dr. Brown has brought forth have got to be examined rather carefully to be of any particular value. The Mayos have reduced the mortality, as Dr. Brown has said, in connection with these uncomplicated umbilical hernias, not because they split the septa, but because they do the work quickly. They are not sluggards. They do not pick up a big piece of tissue in the bite of the forceps and cause necrosis and necessarily bad union, but they do admirable work, and in their hands the mortality of necessity is very low.

Whether the vitality of the patient is subserved by the Mayo or Kocher operation is a question for further discussion and experience to determine. It was ingenious on Dr. Brown's part in that he showed his surgical judgment in laying open that great gangrenous sac. A good surgeon would not do anything else, as that is all there is to do in such a case. Those of us who have had big femoral or inguinal hernias, wi h strangulation and gangrene to deal with, in which we had to open the sac and in which we did radical work at the first operation, know that most of the patients died. I have operated on three such cases, and they all died. Dr. Brown's ingenuity came in in leaving the patient alone after simply laying open the sac, and later doing the radical work from below. That is where he showed himself to be a great surgeon. In doing work on the bowel, it is well to get away as far as possible from any injured surface, for then there is greater liability to get union quickly and perfectly in good healthy territory.

There is another rather interesting point in connection with Dr. Brown's patient. He did nothing to the hernial opening and he has done nothing in the way of a radical cure of the umbilical hernia since, and yet he has obtained a nice scar and a good result. An interesting feature is that his patient has a fine depressed scar, with no tendency to another hernia, and I believe it is largely because he has left a large stump of fixed mesentery at that point.

I wish to extend my personal thanks to Dr. Brown for presenting this case, and to congratulate him upon the splendid result that he obtained in the face of such desperate prospects.

Dr. Louis Frank, Louisville.—I wish, like the preceding

speakers, to compliment Dr. Brown on his brilliant piece of surgery. I agree with Dr. Hayd that the most tactful part of his work was the lack of insult to the tissues after the first operation, and the anastomosis below the point of injury by the supplemental incision.

I wish to differ, however, from Dr. Morris, as I hardly think his comparison of the normal process of labor with the passage of pathological products from the gallbladder is a fair one in this connection. My experience has been different from that of Dr. Morris, Dr. Hayd, or of Dr. Gilliam, and is rather in accord with that of Dr. Brown. The mortality from these cases, in my experience and according to my study, has been quite large. Especially is this true of the strangulated cases and of those cases of large umbilical hernias. With a small amount of gut involved the mortality is not high; with a larger amount of gut it is proportionately higher. The explanation of this is not so much interference with the ganglia, as it is the great amount of gut placed into a cavity which is no longer accustomed to it, thereby creating direct pressure on the lung, bringing about possibly pneumonia, circulatory interference, and many conditions in this way, rather than through the anesthetic. I believe the operation of Mayo is a great advance, and the best one advocated for this condition, as it is based upon proper mechanical principles.

With the old operation and a longitudinal incision we take up and overlap equally as much as we do by the Mayo operation, but at the same time we lessen the amount of space in the cavity and amount of gut we can place into it. We also change the direction of intraabdominal pressure; we force the intestines upward. It is for this reason we have a greater number of recurrences. The normal intraabdominal pressure is outward and this is only properly attained and without danger of recurrent injury by the operation of Mayo. Further, the intraabdominal pressure exerted after the Mayo operation is in its effect upon the closed fascia very much like the pressure exerted upon a dam by the water above it; the pressure tends to close tighter the adjacent fascia and keep the layers of the aponeurosis in apposition, and tends to make the union a permanent one, which is not accomplished by the old operation. Dr. Carstens has explained this. He does the same thing in closing the opening in the direction in which it occurred. The direction of this opening is lateral, and not longitudinal; therefore, the intraabdominal pressure exerted upon the line of union by the Mayo operation is less than by any other method.

Dr. Brown mentioned another point in connection with his case, not referring directly to umbilical hernia, but as bearing upon femoral and inguinal hernias, and that is the supplemental incision in the median line. I believe the time will come when we will make the supplemental incision in all cases. Particularly is this true if there is gangrene, if the gut has been strangulated for any length of time without gangrene, when we are undecided

as to whether resection has to be done, but where the gut is to be replaced; it is a dangerous thing to replace a gut that has been strangulated for any length of time in the abdominal cavity without looking beyond the point of constriction. Some of our cases of strangulated hernia die from extension and rupture beyond the point of constriction, and for that reason I believe the operation done by Dr. Brown will be performed with greater frequency, ever watching the gut before closing completely, and taking the patient from the table.

My experience in cases of strangulated umbilical hernia has been very unfavorable. I believe the worst surgical emergency I ever saw was one of strangulated umbilical hernia, in which the entire skin covering the sac itself was beginning to be gangrenous. This had been going on but a short time. Double resection was necessary, the patient dying from absorption that preceded operation, and not from peritonitis. I have seen these cases occur in women who have not borne children, in whom there is not so much diastasis, but invariably in large, fat women, weighing between 280 and 300 pounds, and often giving rise to great difficulty in the treatment and proper handling of them.

Dr. Albert Goldspohn, Chicago.—I think that the essayist showed simply normal judgment in dealing with this case, and in not doing all his work at one time. No one, with any experience as a surgeon, would have done differently in this case, especially if he could make out that it was a large bowel that was out and not the small intestine, because the latter is the more important for nutrition of the patient. The patient, under such circumstances, has the best prospects for getting into a good condition for the main operation later. It is somewhat different when the small intestine is extruded. I remember a case that was grossly neglected in the hands of an ignoramus, where the small intestine was out and gangrenous. I did the same thing that Dr. Brown did, simply making an artificial anus for the time; but that patient did not have sufficient small intestine to be nourished adequately, and instead of improving, she died from inanition, before getting into a condition suitable for the main operation. This was some eight years ago. Had I such a case at present, I might have attempted a primary operation.

With regard to the Mayo operation, I think if my memory serves me right I am correct in saying that Dr. Mayo is not entitled to all the credit of the procedure that has been mentioned by his name, much as I admire Dr. Mayo's contributions to surgery and his judgment. I think I am not wrong in saying that a gynecologist in Germany preceded Dr. Mayo by at least one year in publication of this subject. These wide diastases (I don't mean a perpendicular separation of the recti, but a more or less circular aperture with a large diameter), are more easily closed by the apposition of the edges in a horizontal direction than they are in a vertical direction. The line of suture in a large proportion of them is better applied in a horizontal than a vertical direc-

tion. I think it was Bumm, of Basle, who brought this out a year before Mayo did, and set forth the vital points of the procedure. The matter of overlapping may be wholly Mayo's; as to that I cannot say. This much is true: the suggestion is a correct one; in the majority of cases this approximation is more easily effected in the line of union that runs more nearly transversely than in any other direction. But we had something else before this was known.

About ten years ago a woman came to me with the largest umbilical hernia (not strangulated) that I have ever seen. It was as large as a man's head. Nearly one-half of her intestines were in the sac, and she wanted an operation. At that time the great mortality and the great inefficiency in the technic made the operation practically unwarranted. I put her off in order to study the subject, and then, a month later, operated, employing a device that was new for that region, and was published in connection with three such cases in the *American Gynecological and Obstetrical Journal* of September, 1897. One of the salient points I brought out and emphasized was to do away with the tension that ordinarily existed upon the closing approximation sutures, or those that hold the tissues together which are to unite. The tension is so great in these cases that the sutures tear out, or the circulation is cut off, the vitality of the tissues being so reduced that they cannot unite well, hence we meet with recurrences. The problem was to get rid of the tension on the sutures which brought the edges together. It occurred to me that we covered up enormous gaps when we amputated a woman's breast for carcinoma, and relieved the tension by special tension sutures. I therefore had a needle constructed by which I could introduce a double silver wire tension suture of six or seven inches in length, extending from the lateral borders of the recti sheaths subperitoneally, but beneath all the muscles across, fastening it over a gauze button on each side, which would come as far apart as this (indicating), throwing all tension upon the lateral parts of the abdominal wall. By means of these button sutures we could tighten up and get the edges of the wound near each other, so that they could be sutured; that is, the different layers were still accessible, and could be sutured individually; and, finally, when all the median coaptation sutures were in, they could be relieved still more of tension by further shortening the long transverse wire sutures. I prefer to turn in progressively the edges of the aponeurosis that has been spanning the chasm and sew it by successive rows of buried catgut sutures until the muscle sheaths of the recti come together. These tension wire sutures should lie beneath all this, but extraperitoneally, and should be left in for about four weeks. Pressure atrophy occurs from the gauze buttons, so that they make depressions, but there is no great objection to that. However, in two of these very bad cases I have seen little weaknesses follow several years later in the places where the tension buttons rested, weaknesses that did not amount to much, perhaps, but still were

recognizable. There was good, thorough, permanent union in the median line. The first case that I had to deal with would not have been curable by the so-called Mayo operation alone, because the distances were too great. It would have been necessary to secure approximation by such tension sutures applied in the up and down direction rather than transversely. I simply wish to say that there is no reason why we should not use these, and still, there was no mention of them previously for this purpose.

The mortality from operation of these very large uncomplicated cases of umbilical hernia up to ten years ago, was very great. With this method of operating, however, and particularly after preparing patients beforehand with sufficient thoroughness, by liquid diet, a reduction of the abdominal contents, as far as possible, and getting the patients into good general health, we can do away with the mortality to a great extent. I have had no mortality, and have operated on two or three cases every year for the last ten years. But with the complicated cases it is different, and I agree with the last speaker, that the amount of gut that is eviscerated directly increases the mortality. The feature suggested by Dr. Morris—namely, close proximity of the solar ganglion to all this work, is a potent factor; but it does not account for all the mortality, because much of it comes fom the diminished abdominal space after operation. When we have to deal with a case similar to my first one, with half of the viscera outside of the abdomen, when we put them back, we have an increase of tension at once which makes a profound impression; it limits the woman's respiration and interferes with the functions of the intestines. All these features must be considered as bearing on the mortality.

The majority of these hernias are not umbilical, but periumbilical. They begin in the little slits in the linea alba about the umbilicus, some below, some above. In connection with this the subject of hidden hernias of small size in the linea alba between the sternum and the umbilicus is worthy of mention. They have caused many men, more than women, to go from one internal medical man to another, because they had nothing that could be seen or felt on cursory palpation, they being little masses (incarcerated) of omentum in small apertures in the linea alba above the umbilicus. This matter was thoroughly ventilated by Bergmann, of Berlin.

The supplemental incision in Dr. Brown's case showed good surgical judgment. I have experienced a good deal of satisfaction from it. In these conditions we must use judgment and carry out a technic which we think will meet the exigencies of the case.

Dr. John D. S. Davis, Birmingham.—So much has been said that very little remains to be discussed. I endorse the operation that was done by Dr. Brown in this interesting case. I think he displayed good surgical judgment in treating the case as he did, that is, by simply incising the gangrenous tissue and afterward

letting it alone. The supplemental incision he recommends is wise and has helped me out very materially in three cases of femoral hernia.

As to end to end anastomosis, I do not think that the objection raised to it is reasonable, certainly it is not practical so far as my experience goes. Much depends on where it is made. If it is made low down in the colon, then, of course, there will result retrostalsis of fecal matter into the intestine which will probably give pain. I have not had any experience as to pain or diarrhea in these cases because my experience, so far as this operation goes, has been on the dog. But you do not have much regurgitation of fecal matter in the high operation, and I do believe the end to end anastomosis with the Murphy button is ideal. I believe there is no device we can use that will take the place of the Murphy button where the anastomosis is done high up. I think the objection that has been raised is unreasonable and is not borne out by clinical experience.

As to the use of carbolic acid, it is a good plan in these special cases, and I would advise Dr. Brown to use it before he resorts to any operative interference in removing this tissue. When used for fifty seconds, it will destroy mucous membrane, and with mathematical certainty the limit of the action of the carbolic acid can be controlled by the use of alcohol as Dr. Morris has stated, and therefore it is not dangerous.

Dr. William D. Haggard, Nashville.—These obese patients should receive some preliminary treatment to take off a part of the enormous weight. If they can be reduced in weight, say twenty or thirty pounds prior to operation, it will prove a decided gain. Such persons have been so long accustomed to having the hernial viscera outside of the abdomen, when they are put back the patient will be likely to have pulmonary and abdominal embarrassment. While, of course, one cannot sacrifice any of the viscera, the operator can take off a large bunch of the omentum, and as most of these hernias contain more omentum than viscera, we should make a resection. A very lax spring mattress will allow them to hammock themselves and double up quite comfortably. This will relieve the tension on the sutures.

I was unfortunate enough not to hear much of Dr. Brown's paper, but I desire to take a moment or two to record a very unique case of strangulated femoral hernia which sloughed, resulted in a fecal fistula of some weeks' duration, and finally healed spontaneously. I have not encountered such a case before in practice or in the literature. Briefly, as the result of a strangulated femoral hernia, suppuration ensued. The woman had no surgical relief such as Dr. Brown gave his patient, and the natural conclusion is that Dr. Brown's patient would have inevitably died without it. Every physician who saw this woman thought she would die, but she survived with a fecal fistula. She was sent to me for operation seven or eight weeks after the occurrence.

I did not feel that sufficient time had elapsed to make a section and end to end anastomosis. I postponed operation and very greatly to my surprise as the result of granulation the fecal fistula closed in three or four months. I fear it is out of place to report a case that got well without operation.

Dr. H. W. Longyear, Detroit.—I do not intend to discuss Dr. Brown's admirable paper in detail, because I have had very little practical experience in this work. There is, however, one point I would like to emphasize a little more, and that is the one made by Dr. Carstens relative to Dr. McGraw's method of treating cases of fecal fistula. I happen to know something of Dr. McGraw's work, and in his hands I know it to be an extremely valuable procedure. It is very simple, and the results obtained by it are excellent. By making the anastomosis and letting the patient alone, the fistula closes of itself in a short time, and it requires no further surgery. Whether the anastomosis is made with the Murphy button or with the McGraw elastic ligature, the principle of treatment is the same.

Dr. Willard Bartlett, St. Louis (by invitation).—I have been looking forward to hear someone speak of an important physiological point which has escaped the attention of those who have discussed the paper. I refer to the important change that takes place in consequence of the patient losing so much of the intestines. In Dr. Brown's case I understand almost all of the large intestine has been taken away. Professor von Eiselsberg, of Vienna, who contributed an extensive article last year to the subject of lateral anastomosis, quoting between one and two hundred cases of his own, states that where the lower portion of the ileum was anastomosed into the sigmoid, uncontrollable diarrhea has occurred in every case, from the fact that the soft feces near the rectum are not retained sufficiently long to enable them to become solid.

Another point of interest to me is the so-called Mayo operation. William J. Mayo has said that it is improperly called the Mayo operation, and in conversation he calls it the vertical overlapping method, and has written of it as such. The point is, what effect the operation may have on a woman who becomes pregnant? Last October I did the vertical overlapping operation, the patient is now seven months advanced in pregnancy, and she is begging for relief from her pregnancy on account of fear of hernia. I saw her a few days ago and told her such a thing could not occur, and that she need not have any fear about it. I wrote to Dr. Mayo asking him about it, but have not heard from him. I met a surgeon from the New Orleans Charity Hospital the other day and he told me that he had done two of the vertical overlapping operations, and in both of them hernia recurred. I told my patient that no such thing could be anticipated.

With reference to the use of the Murphy button, I will say that a few days ago, with another object in mind, I looked up the last cases in which I used the button. I took six in a row

within the last few months. In one the anastomosis was made between the duodenum and gallbladder; three were gastroenterostomies for cancer; two others were enteroenterostomies, after gastroenterostomy. The first anastomosis was made last October, and the last one a few months later—I do not remember how long, but perhaps six months. None of these buttons has passed yet. There we have six in a row, all retained. One of them was an expensive button where the two flanges or two halves were of different sizes. The small end was in the stomach, the big end in the jejunum. As revealed by the X-ray the whole button is now up in the stomach.

I like to use the Murphy button because the patients can come off the table afterward so quickly, but I wish to add that as soon as we can get anything else that will enable us to get patients off the table as quickly as the Murphy button without its objections, I will stop using this device.

Dr. Brown (closing the discussion).—I feel grateful to the members of the association for the liberal discussion of my paper. There are only one or two points I will further discuss. I was much impressed by the remarks of Dr. Morris in which he said that there was a tendency on the part of some surgeons to work by textbooks instead of using their mechanical ingenuity. There are certain fixed principles in regard to intestinal surgery, which apply to the proper application of certain bowel stitches, and to the application of serosa to serosa in resection work, that are well defined and well understood. If we understand the application of these principles, we can deal with intra-abdominal conditions by adjusting our work to the conditions that confront us, and not endeavor to follow precedent in surgery of this character.

In regard to the Mayo operation, I wish to say that this operation was fully discussed at the meeting of the American Medical Association, held in New Orleans. The discussion at that time was brilliant, and I was impressed with the remarks made by Dr. Mayo, in which he disclaimed priority for the operation. He said in all probability the operation was done by Hippocrates, and that he merely offered it as a method suitable for certain varieties of umbilical hernia. In this day and time, when we have everything from needles to uterine dilators claimed by men, it is refreshing to hear talk of this kind. I think one of the worst phases of the surgery of this day is the claiming of needles and other instruments and methods of doing operative work. We do our operative work according to fixed and established principles that have been proven to be good, and we should endeavor to adjust our surgery to meet the conditions that confront us.

With regard to the McGraw ligature, I want to take very radical issue with Dr. Carstens and Dr. Longyear regarding this method, not to condemn it, because I have used it in gastroenterostomy satisfactorily, but in this especial case the advocacy

of this method is out of place. Here we had a loop of ileum fixed at the umbilical ring, and an artificial anus. We had here (indicating) the descending colon opening at this point (illustrating) and opening again at the anus. My object in doing this operation was to restore the parts to as near their normal state as possible under the circumstances. I therefore made end to end anastomosis, purse-stringing this (referring to diagram), leaving a blind pouch at this point and another blind pouch at the point I show you. I removed all of this pouch and that pouch (indicating), and we have now only a small bit of mucosa left, which I will remove by the method suggested by Dr. Morris and Dr. Davis—namely, with carbolic acid. There is no pouch now on either side, neither the ileum nor colon, but merely an attachment to the place where the descending colon was attached and where the ileum was attached. All of this was everted, clamped off and removed, and we have merely this attachment, which I can remove. Had I done the procedure advocated by Dr. Carstens, I would have had to deal with regurgitation of fecal matter through the ileum and colon and also the anus; in other words I would have had three ani in full operation when the object of the surgery was to put back in commission the one that had been so long out of use. I endeavored to restore the parts to their natural relations. The McGraw ligature would have been inappropriate for this case.

In regard to the point made by Dr. Bartlett, which is an exceedingly good one, concerning diarrhea following such conditions, my experience has been limited to this one case. But I wish to say in this connection that it has not panned out as von Eiselsberg spoke of, but instead of having diarrhea the patient has constipation, and castor oil frequently is required to move this woman's bowels.

CONSERVATION OF THE NATURAL RESISTANCE OF PATIENTS IN SURGICAL WORK.

By ROBERT T. MORRIS, M.D.,
NEW YORK.

Lawson Tait was the first great exponent of the principle of conserving the natural resistance of the patient. The reasons given for his remarkable statistics were various, and not all were complimentary, because many of us could not understand, judging from our own experience, how he could have so small a mortality rate. Tait operated very quickly. He did no more than was necessary in a given operation. He avoided handling viscera unnecessarily. He avoided disturbing the patient's mind with details about what he was to do, and carried in his presence an air of optimism. He apparently treated his cases and his patients lightly. Many of the Fellows of this Association knew Mr. Tait personally, and did not join in the general scepticism concerning his statistics, which were remarkable for that day and time.

The repair of surgical injury depends primarily, secondarily and finally upon a proper hyperleukocytosis, using that term in a generic way to avoid elaboration of detail in statement. Hyperleukocytosis is a manufacturing process, carried on under the control and guidance of the sympathetic nervous system. The more we injure a patient by surgical work, the more we lessen the development of a protective and reparative leukocytosis, and the more also do we lessen the natural resistance of the patient.

What are the common ways for lessening the natural resistance of the patient? Prolonged administration of anesthetics is one way. All of us have seen patients carried to the danger line with ether and with chloroform. On the other hand, we have watched with satisfaction the work of men who are expert in administering an anesthetic; they begin with nitrous oxide, or add oxygen, changing from ether to chloroform, or vice versa as the case demands. They do it skilfully, quickly, nicely, and avoid the anesthetic shock which takes away from the patient some of his resistance.

Prolonged operating is another factor in taking away the patient's cell self-control. Quick work was a point in which Tait excelled. Quick work, if in proper proportion and not at the expense of incomplete work, but is simply expeditious work, conserves the natural resistance of the patient. Almost any patient is in good condition after fifteen minutes of operating, no matter what we are doing. Almost any patient, too, is depressed by an hour of operating, no matter what we are doing. Some men will respond by saying that if we are to do quick work we cannot make approximately complete hemostasis—a point that has been insisted upon by many writers, who say that if we do not make complete hemostasis we are likely to have infection. Opposed to this fact we have another. If we operate so quickly that the patient retains his natural resistance we do not need such complete hemostasis, and the patient will absorb very rapidly the culture media that are left in the wound. One of the Fellows present will at once call to mind a case of his in which I operated for double loose kidney, and both sides suppurated. It is the only case of loose kidney I believe in which I ever had suppuration, excepting one in which a piece of gauze was left in the wound. In operating for loose kidney I seldom tie a vessel from first to last, but in the case in question perhaps suppuration would have been avoided if more time had been spent in hemostasis. My own impression is that we did not shave and prepare the skin properly, but I will not shift any of the responsibility in this case or in the one with gauze left in the wound. I seldom spend more than fifteen or twenty minutes in the loose kidney operation, from the first cut to the last suture, and patients are left in better condition than they were in earlier work when great pains was taken to ligate every bleeding point.

There are many cases in surgery in which quick work means incomplete work, from one point of view, but it is a matter based largely upon judgment in the effort to obtain, or to retain rather, the natural resistance of the patient. The use of gauze packing in abdominal work is another way for lessening natural resistance. The development of the employment of gauze packing was the natural outcome of the teaching on the subject of drainage a few years ago. We were trying to drain away all septic fluids and culture media, and got to the point where the matter was overdone. The momentum and velocity of the idea carried it beyond its field of usefulness, and we overshot the mark. Now we have got to go back and make a new series of observations. The

matter of putting in gauze reached such a point in New York that I accused some of my friends of committing taxidermy upon their patients. If we introduce a yard of gauze into the peritoneal cavities of ten healthy policemen to-day, very few of them will feel well to-morrow, and they will not appear on their beats soon, even though we save almost all of them by subsequent treatment. Now, how can we expect a weak septic peritonitis patient to bear what these strong men could not bear well?

If the Japanese could get a yard of gauze into the peritoneal cavity of each Russian there would soon be a victorious shout of "Banzai." It is easy to lose patients with peritonitis. It is easy to take away the resistance which would carry them through if we did not attack them too severely with our surgery. If we operate quickly, get in and out quickly, disturb the viscera as little as possible, give as little anesthetic as will suffice, and come as near as possible to leaving the patient alone we conserve the natural resistance to such an extent that I know of no more satisfactory cases to treat, in the feeling that we are accomplishing something, than cases of peritonitis. In appendicitis work one will have such a list of recoveries that he may be accused of removing normal appendices. The tendency is to do too much,—conscientiously if you please,—but too much.

Washing and wiping the peritoneal cavity is, I believe, another way of lessening natural resistance. In some cases it certainly produces shock, and by so much lessens the ability of the patient to manufacture leukocytes promptly. If we wash and wipe the peritoneal cavity carefully, and put in extensive drainage apparatus, can we get out all of the septic matter? By no means. Is there some one who can get it out by his special method? Yes, the patient can do it, but we cannot. Leave him as nearly uninjured as possible, and it is astonishing to observe what he will do with his toxins. If we do not knock the patient down and keep him down, it is perfectly marvelous what recoveries these patients will make.

But it is right here that surgical judgment is required. That is, however, what we are practising for. I will admit that it is not easy. I am not speaking to an undergraduate class of students. To them I would not dare say what has been said in the last few minutes. This is an audience of experienced men. Some will ask, "Why operate at all in a case of appendicitis with abscess, if we are to leave the patient almost alone?" The whole principle hinges on one point, which requires the statement of another

point for elucidation. If the surgeon pricks his finger while operating in a case of septic peritonitis, the operator may be dead in a week while the patient goes on to recovery. Why is that so? The patient has called out all of his resistance factors, chiefly hyperleukocytosis, while the surgeon was unprepared to meet the onset of a colony of rapidly proliferating bacteria. That is the reason why the patient recovers and the surgeon dies. Was it necessary for the surgeon to get all of the septic matter out of the peritoneal cavity of that patient who recovered? No. All he needed to do was to turn the scale in the warfare between the bacteria and the leukocytes, and then leave the patient to do the rest. That is the principle. By quickly turning out most of the septic material without injuring the patient by the process, the tide of battle is turned, and the patient's natural resistance is conserved.

DISCUSSION.

Dr. J. Henry Carstens, Detroit.—I have listened to Dr. Morris's paper with a great deal of pleasure and interest, and I am glad that he has brought up this subject for discussion. I have been an advocate of rapid operations for a long time. The editor of the *Philadelphia Medical Journal* wrote a number of articles on rapid operating some years ago, and among other things he said there was no need of it. He made sport of it, and spoke of seventeen laparotomies having been done in three and a half hours, or something like that. I finally became impatient in reading these articles, and wrote him a sharp letter, giving him my opinion about the matter, with the effect to cause him to modify his statements.

To be a surgeon requires a delicate hand besides brains, and, as a general rule, the man who has received a good education, whose life has been devoted to study, who has wealth at command in his youth, is not the man with that fine mechanical hand that is necessary to make a surgeon. That does not mean, however, that he will not be a surgeon, and a good one, if he will try. But those who aspire to become surgeons should cultivate manual dexterity, so that they can operate rapidly, and the men who cannot do this ought to give it up and leave it to somebody else. I feel like my friend, Dr. Morris, that the man who cannot anchor a kidney in ten minutes or thereabouts had better give it up; and the man who cannot take out an ordinary appendix in eight or ten minutes and sew up the wound ought to practise something else. That is the way I feel about it. Sometimes we may have a bad case, with adhesions; but an operation for any ordinary ovarian tumor ought to be done in ten minutes. The same holds

good for vaginal hysterectomy. One should be able to do a vaginal hysterectomy, with clamps, in less than ten minutes. I will allow fifteen minutes for abdominal hysterectomy. It makes me very impatient to see men take two hours and a half, or more, to do these operations, and then, perhaps, take twenty minutes for luncheon. The quicker you do an operation and the less chloroform you give, the better for the patient.

There is much in what Dr. Morris said about the late Lawson Tait. Some people go through life with a long face and woe-begone expression as though the world is coming to an end in five minutes, and when these kind of people talk to patients the latter get scared and think they are going to die. Lawson Tait did not do that. We should not do it. "He who can put courage in the human heart," said Van Swieten a hundred years ago, "is the best physician." And that is what we should try to do. We should try to imbue the patient with the idea that the operation is simple and one of the easiest to do; that it is attended with very little danger. We must try to get patients sometimes into that condition or frame of mind in order to resist microbic invasion. Patients have a limitation to resisting microbic invasion, just as they have a limitation to everything. There is a limit to nature.

I quite agree with Dr. Morris in regard to flushing out the abdomen, but there is a limit to it. I do not flush out the abdomen regularly in these cases, but I do it once in a while, that is, when there is infection. If I can take out nine-tenths of that infection, I leave only one-tenth, and this nature can take care of. If I leave every bit of infection there the patient cannot take care of the nine-tenths, but I get rid of as much as I can, and his remarks in regard to drainage in some cases of appendicitis I agree with. If I need drainage I usually put in a rubber tube and, as a rule, have no further trouble. Another thing: after operation, to increase the power of resistance of the patient, you cannot do better than to fill the bloodvessels with saline solution; put in two quarts of saline solution in the rectum. I do that if the patient is weak, or I may inject a quart or more of saline solution under the breast during the operation, and sometimes I think it really wonderful how it becomes absorbed. It is eliminated by the kidneys. If we flush out the system the bacteria are eliminated, as well as excrementitious matter of all kinds, and the patient, in twenty-four hours, or at least at the end of forty-eight hours, is quite apt to be in splendid condition.

Dr. H. W. Longyear, Detroit.—It seems to me that no subject which has been brought before the Association is more valuable for discussion than the one introduced by Dr. Morris to-day—namely, conservation of the forces of the patient. I do not think we should depend altogether upon rapid operating; we should prepare the patient just as though we were going to have a long operation, then do the operation rapidly if we can. We do not know when we begin that we are to have a short operation. No

surgeon can foretell that. We may have a lengthy operation when we think it is going to be a short one. I believe we should make every preparation beforehand with that thought in view. Otherwise we are inclined to sacrifice important measures to time.

Some years ago this question began to force itself upon my mind in the way of conservation of the body heat of the patient, which is so extremely valuable at the time of operation, and for that purpose I have used rubber bags, which are heated by hot water, on which the patient lies during the operation.

The method of administering the anesthetic I think is most important. Some years ago, before this Association I was a strong advocate of chloroform. I have now practically abandoned its use. I do not think I ever lost a patient on the table from chloroform, but I have had several patients who came near dying as the result of its use, and I recall a number of deaths in Michigan that were attributable to this anesthetic alone; so, of late, I have practically ceased to use it. I now employ the method that was mentioned by Dr. Morris, having begun its use some two or three years ago. The method is this: after proper preparation of the patient, first give nitrous oxide, follow immediately by ether, and at end of the operation flush the stomach with normal salt solution, to do away with nausea. That method of anesthesia is almost ideal. At all events, it has proven so in my hands for something over two years. The patient leaves the operating table looking better; the color is better; the nausea is far less; the patient has far less shock in every way, even when it is necessary to do prolonged work. Then I think the filling up of the patient in every way possible with fluid is extremely valuable. I flush the abdomen of a good many of my patients, leaving the abdomen full of normal salt solution in some cases, as well as using it under the breast and in the bowel, and I think it is of very great value. If we keep the conservation of the forces of the patient in mind we will have very much better results.

Dr. Albert Goldspohn, Chicago.—I am very glad Dr. Morris has chosen this subject, and I agree with him in almost all the points he has suggested or spoken of. Whether his theory of leucocytosis is all there is to it, I am not prepared to say. There may be other factors than simply leucocytes that figure in this matter. Washing out the abdomen is good scientific nonsense when we are dealing with microscopic objects, as disease germs, or the microscopic carriers of disease germs. All germs ride on or adhere to something. You cannot wash out these microscopic carriers of germs. You wash more of them into a dangerous portion of the abdominal cavity near the diaphragm, where the lacteals for absorption are more numerous, and do more harm than good.

But for macroscopic quantities of material, like blood clots or escaped masses of contents of ruptured cysts that would be objectionable as culture material, the mechanical assistance of a current of water is of advantage.

Now, all the things that Dr. Morris mentioned are important—namely, small amount of anesthetic, brief operation, as small exposure of viscera as possible, which means a small wound, and as quick work as possible. That, however, is only one side of the question.

The other side is, what are the indications for the patient? What ought to be done, and what is reasonable for us to do for this case in one narcosis? We may need, for instance, to do an abdominal section. But in many women we have three or four other things to do: plastic work, a curetment, a cervix operation, hemorrhoids to remove, or, occasionally an operation for a floating kidney as a supplement. If the patient has a good heart and the other vital organs are normal, usually the most necessary supplementary acts can be done in conjunction with the main operation without harm and with much benefit to the patient. Personally, I have not much sympathy for those who do quick operations and ignore what they ought to do for the patient, what they could do, and bring about much greater improvement in her future health by so doing. There are a few cardinal fundamental principles that we need to get hold of, and I assume that Dr. Morris uses surgical judgment and takes those principles as a guide in determining how short or how long each operation should be conducted.

There is one fundamental principle in abdominal surgery that has not been alluded to thus far in this discussion, and that is with reference to the exposure of the serous covering of the peritoneum to the air. According to investigations which were made a number of years ago, if we take aseptic filtered air (ordinary air is not aseptic) of the usual degree of humidity in a globe and put two knuckles of intestine into that globe, with filtered air passing through the globe for twenty minutes, and then put these knuckles of intestine back into the abdominal cavity without suturing them, simply suturing the mesentery so that the knuckles will lie near each other, and open the abdomen of the animal some days later, they will be found adherent in every case. Air has a destructive drying out effect on the peritoneal epithelium, and therefore viscera covered with peritoneum should not be exposed to air during our surgical work. This can be done either by making a small incision, barely large enough to give us room for all we need to do, or by covering them with moist pads. I do not want to see the intestines any more than I want to see snakes during an abdominal section, and preferably they should be covered with moist cloths or gauze wet either in normal salt or in Tavel's solution. We should keep the intestines and the general abdominal cavity covered or walled off and then sponge rather than wash out the circumscribed field of operation. We can do the simplest kind of appendix operations through a small incision without packing and without exposure of intestines. But very many of the more complicated cases we deal with are those with adhesions; and if I want to satisfy myself that I have done my

duty I need to explore the surrounding of the field of the operation. And while doing that I usually want the intestines covered with moist gauze. I do not think that that gauze, being carefully placed, will injure the intestines as much as they would be injured by the air *plus* the friction incident to my manipulation.

Dr. John D. S. Davis, Birmingham.—I heartily agree with everything Dr. Morris has said with reference to the kidney and appendix. So far as the kidney is concerned, I have been both patient and operator; and as for hemostasis, it is never necessary to ligate an artery in kidney work—forceps pressure being sufficient. The operation can be done quickly and the patient removed from the operating table in good condition.

As to the appendix, I heartily concur in what he has said. We know that by simply folding the intestine together it will unite, and it will do this whether it is exposed to air or not. There is no necessity of scarifying it, as Senn has done, or of denuding the epithelium, as I recommended many years ago.

Dr. Goldspohn.—There is no uniting; it is temporary only.

Dr. Davis.—As to the abdominal cavity in gunshot wounds, in conserving the strength of the patient, this is not done without getting out every particle of infection. If we have a patient with gunshot injuries of intestine he is like Dr. Morris's surgeon, who had pricked his finger and had not called out his resistance factors. Thorough cleansing rather than expeditious work would, I think, in such a case, better conserve his natural resistance. It is here that we can conserve the best interests of the patient by thoroughly cleaning out the infectious material. It is not necessary to eviscerate patients, because, through a small incision you can examine the intestine section by section, clean off or wipe off infectious material, and in the majority of cases it may be better to flush the abdomen and leave it full of normal salt solution. You can hardly flush too much in these cases. By so doing thoroughly patients come off the table in much better condition.

Dr. Morris (closing the discussion).—To be brief about the points that have been brought out, Dr. Carstens stated that he used little drainage now in most of his cases where he formerly employed gauze drainage. I use little or no drainage. It is a matter of surgical judgment. But I never use a drain larger than a cigarette. I use gauze wound loosely, covered with gutapercha tissue, not gauze packing. Dr. Carstens says that occasionally he has a patient in whose case he feels he must flush the abdomen. That is quite true, no doubt. Keep in mind the principle, that is all. Occasionally the case that appeals to our surgical judgment is one in which a good deal of flushing must be done; fecal matter must be flushed out, yet I have seen fecal matter encapsulated in a perforation case of typhoid, in which recovery occurred, and in operating for adhesions a year or more later, I found the encapsulated fecal matter. Just think of that! So we do not need

to flush quite so often or so thoroughly as we have previously believed we must.

Dr. Carstens believes it is important to fill up the bloodvessels with saline solution, with infusion in the bloodvessels, or enteroclysis,—with saline injections in the bowel. That is true, as by so doing the emunctories will carry off the toxins rapidly. You have higher arterial tension; the patient is in a much more comfortable condition. It avoids shock. It is an important thing to fill up the bloodvessels and do it with physiological salt solution. It is well to remember that the common physiological saline solution of six-tenths of one per cent. is isotonic for a frog's blood, and nine-tenths of one per cent. is isotonic for man's blood.

Dr. Longyear says that we may have to prolong an operation unexpectedly. That is true. We may have to do that. But keep the principle in mind to open and close as quickly as possible, and not get into the habit of puttering just because anesthesia to-day is pretty safe. The assistants are ready, and everything is there for our comfort, and we may forget the patient. Dr. Longyear also spoke of flushing the stomach to avoid vomiting after anesthesia. This matter has been worked out by Dr. Hess, who published an article a couple of years ago in the *Medical Record*, showing that ether was very freely excreted by the stomach mucosa, and that it was taken in solution by water in the stomach; that is to say, if the stomach is filled with water before operation, the excretion of ether by the mucosa takes place, but the patient vomits the water soon after operation, and there is less vomiting and less irritation of the stomach afterward. One vomiting may clear the stomach and leave the patient quite comfortable; while without the water, the patient would nave gulped ether for a number of hours afterward. It is well known that patients will gulp ether hours after operation, when it is thought that the patient has swallowed a great deal of it. But the patient did not swallow the ether at all; he breathed it in, and it was excreted by the gastric mucosa. Leaving the abdomen full of saline solution is a method that has many adherents, and is certainly one of much value I employed it for about a year, and then went back to methods for which I personally happen to care more; but that method, nevertheless, is to be treated with respect.

Dr. Goldspohn says that the theory of leucocytosis does not cover all the field. That is true, but in order to cover the whole field it would have been necessary for me to speak for several days continuously, and the only way to condense the matter in a nutshell was to put the whole thing together and use the generic term of leucocytosis. With reference to washing out the material in the peritoneal cavity that serves as a culture medium, I will say that formerly I spent a good deal more time, taking more pains to do this than I do at the present time. We are lessening the natural resistance of patients by the time spent in taking out this culture medium, because the peritoneum will take it up if the patient retains her natural resistance. I have not met infection,

to my knowledge, due to the fact of having left septic material from ovarian cysts in the peritoneal cavity. Formerly, I washed it out carefully; latterly, I have sometimes left ropy, sticky material in the abdomen,—even brown, axle-grease, machine-oil-like contents in quite appreciable quantity,—without having any bad results whatsoever from it. It may be Dr. Goldspohn and others have bad results; they may know it is a dangerous thing to do; but so far as my experience goes, I have conserved the natural resistance of my patient better by leaving some of it and getting out the most of it as quickly as possible.

We may have multiple operations, in which we need to repair the perineum and cervix and to do an operation for retroversion of the uterus at one sitting. These several procedures take time, but we can use judgment. When the patient has rosy cheeks, good pulse, is breathing naturally, has warm forehead, warm feet, and everything is going on nicely, keep right at work. Mark you, I don't say this to an undergraduate class, but I can say it with propriety to this audience.

The endothelium is injured by exposure to the air. That is one reason why I believe in making short incisions, or numerous short incisions, exposing the bowel as little as possible, and if, as Dr. Goldspohn says, we hold back the peritoneum and loops of bowel, even temporarily with gauze—say ten minutes—and then take the gauze out and throw it into the waste-basket, we will find we are likely to throw bowels into it as well, for they will be found sticking to the gauze after ten minutes of contact. It will become necessary to eviscerate and envelop the bowels in gauze occasionally, but it should be done as little as possible.

In appendicitis operations we should do complete work; explore; separate adhesions; get the appendix; get it regularly if possible, no matter what the adhesions may be; look for secondary abscesses, for complications; work it all out, but we should not putter over it, or think because the case is complicated we must spend an hour or more over it, because we are taking away our patient's natural resistance. He cannot take up the bacteria and dispose of them if we injure him by trying to do too complete work.

Dr. Davis's point of getting out every particle of infection is one that deserves consideration and is open for discussion. I have personally come to believe that I myself have spent too much time in doing it. I tried to do it too conscientiously, and found afterward that the patient will do it better if let alone and allowed to work out the problem. This is a field that is going to give the men who have not followed this line of practice a lot of surprises. Men have said to me frequently in New York, "I was afraid to operate through a short incision; I was afraid to leave the case without flushing; I was afraid to put in small drainage, and leave out gauze packing, but little by little I have tried that method on patients whom I could afford to lose, and have had so much better results than I did in those patients I could not afford to lose, that I am practising it more and more."

STERILITY DEPENDING UPON RETRODISPLACED UTERI, AND THEIR RELIEF BY THE ALEXANDER OPERATION, WITH REPORT OF TWELVE SUBSEQUENT PREGNANCIES.

By HERMAN E. HAYD, M.D.,
BUFFALO.

I do not propose to discuss to-day those mooted questions upon which there is so much difference of opinion—whether the sterility seen in retrodisplacements is due to the displacement, or to the associated catarrh so frequently present with these displacements. No doubt both factors are responsible for the sterility; in some cases the proper entrance of the male generating fluid is obstructed or interfered with by reason of the altered position of the womb, while in another class the abnormal position of the uterus interferes with the proper circulation of the organ, and, as a result, there is produced a catarrhal endometritis with its discharges, which in many cases is lethal to the spermatozoon. One thing, however, is certain, that married life which has been unfruitful for years often becomes fruitful when a retrodisplaced uterus is corrected, whether by mechanical or operative measures.

The Alexander operation was designed and beautifully executed to meet a specific class of suffering women, namely, those with uncomplicated retrodisplaced uteri; and the success which has followed its careful execution in properly selected cases has been most satisfactory to many careful, practical and discrimniating surgeons. Some of you may maintain that a retrodisplaced uterus, which has occupied this position for a considerable time, always has adnexal disease, but this cannot be true, as there are many women who have had a retroverted uterus for months and years, and in which the tubal and ovarian trouble, if at all present, was so slight that they were cured by a curettage or by placing the uterus in a normal position, either by a pessary or an Alexander operation. Occasionally a mistake may be made in diagnosis and a retroverted uterus with slight adhesions, or with some slight tubal or ovarian

trouble, may be operated upon. No particular harm could come to the patient. She would simply continue to suffer, and perhaps more than she did before the Alexander operation was performed. A section would be indicated, as it was originally. The tubes and ovaries and adhesions would be dealt with as the necessities of the case required; but the uterus will be found in normal anteposition. However, such mistakes in diagnosis should rarely be made by men of our experience, because each and every one of us knows when a uterus is movable within normal limits, and can usually under chloroform distinguish diseases adnexa.

Since the Alexander operation has been so freely accepted by many competent surgeons there has developed an over-zealous class of operators, who have extended the proper and limited field of its usefulness, and have included in their list of cases retrodeviated uteri with adhesions, and with more or less marked adnexal disease, supplementing the original and limited operation by opening the cul-de-sac or abdominal cavity and attacking the complications from these routes. This method has never appealed to me, because I prefer, when the peritoneal cavity must be opened, to open it in the median line and do what surgery may be necessary on the tubes and ovaries, and then shorten the round ligaments intraperitoneally. A dangerous class of operators exist, however, who have discarded the simple Alexander operation, and who shorten the round ligaments extraperitoneally, but always open the canal and peritoneal cavity on each side, so as to make what they claim as a more certain and more permanent operation, breaking up adhesions of the uterus if they exist, and removing the tubes and ovaries, or doing conservative work upon them through these openings. Our distinguished member, Dr. Goldspohn, at our Cleveland meeting three years ago, gave as his reason for doing his so-called bi-inguinal celiotomy the number of failures which resulted from the simple operation, and the inabilty of the ligaments to stand the test of pregnancy and future delivery, and the difficulties associated with making an absolute diagnosis unless the finger is passed through the internal ring and the tubes and ovaries palpated on each side in the abdominal cavity.

I accepted his challenge then, and promised that I would report my results after the simple Alexander operation where pregnancy and parturition had taken place; and I beg now to report in detail twelve cases where the Alexander operation had been performed with more or less plastic surgery of the vagina and perineum, which have stood that test, and upon last examination, some

in months, and others in years, after the operation was performed, the women were well and happy, and the uterus was in perfect anteposition.

In fact, in every case of pregnancy which has followed the Alexander operation in my list the uterus has remained in position, and I believe that the pregnancy contributed largely to the success of these operations and the general well-being and comfort of the women. A new uterus was made, muscular tissue in the round ligaments was increased in amount, adhesions to the scar and skin were separated and torn loose as the growing uterus went higher into the abdominal cavity, and after the labor had taken place a normal involution of all these structures set in and a natural and satisfactory and happy puerperium resulted. I have no reason to doubt that many other women upon whom I have done the Alexander operation have also borne children; but these cases which I report to-day I have personally confined, or they were attended in their confinements by intimate friends, so that I had the opportunity of examining the women repeatedly since their babies came. Of these 12 cases, three (Nos. 1, 3, 5) have had two children. One (No. 8) had three children; one (No. 2) had one large male child delivered with forceps, in which a bad tear of the cervix resulted, and which I sewed up three months after the baby was born. I also did a trachelorrhaphy for this woman when I did the Alexander operation, and I frequently cureted her for induced abortion attended with fever and chills, between the time of operation and the birth of this last baby. In No. 4 I did the Alexander operation in the second month of pregnancy; in No. 11 pregnancy took place one month after the operation, and No. 8, in her despair, adopted a baby, and, when that baby was four months old, she became pregnant. Moral: Never despair.

It seems to me that this report should forever set at rest any dispute as to the ability of the round ligaments after they have been shortened by the simple Alexander operation, to stand the test of pregnancy; and, secondly, that a retroverted uterus of months, and even years, standing can have physiologically healthy tubes and ovaries, and that such facts can be demonstrated, without putting the finger into the peritoneal cavity through the incisions; and if I can report 12 cases, that number could be increased indefintely by the additions of other operators who do the Alexander operation frequently—as, Longyear, Frederick, Mann, Brunn, Cleveland, Martin, and a host of others.

The operation, as done by me, is to pick up the terminal ends

NAME AND DATE OF OPERATION.	SUBSEQUENT PREGNANCY.	RESULT AT EXAMINATION AND DATE OF SAME.
1. Mrs. R. September 22, 1897. Perineum, Cervix and Alexander.	First baby 19 months after operation. Second baby 11 months after above.	February 2, 1904. Uterus in perfect position, six and one-half years after operation.
2. Mrs. D. November 29, 1897. Cervix and Alexander.	First baby January, 1904; but I have attended her in three provoked miscarriages and curetted her after each one.	April 10, 1904. Uterus in perfect position, and to-day sewed up a double laceration as a result of a forceps delivery for last baby.
3. Mrs. B. March 21, 1898.	January, 1902. Delivered her today, breech presentation. A fine boy, and only child, and married thirteen years. Also girl, July 2, 1904.	July, 1903. Uterus in perfect position. August 15, 1904. Uterus in perfect position.
4. Mrs. W. February 24, 1898.	Retroverted pregnant uterus. Two months.	July, 1902. Uterus in perfect position and no bad results followed operation. Baby came at end of gestation.
5. Mrs. B. July 20, 1898. Sewed up cervix and did anterior and posterior colpor. and perin.	August, 1899. A boy. May 8, 1902. A boy. Two miscarriages since, one two months, the other one.	August 2, 1904. Uterus in perfect position.
6. Mrs. W. April 21, 1901.	March 14, 1903. A girl baby.	March 14, 1904. Uterus in perfect position.
7. Mrs. B. January 14, 1901.	January 11, 1904. A girl baby. Breech presentation. Died. Adopted a baby before this came.	July 28, 1904. Uterus in perfect position.
3. Mrs. R. January 17, 1901. Dr. Ingraham removed right tube and ovary in 1900.	May, 1902. A boy. August, 1903, Another boy. Another baby July, 1904.	July, 1903. Uterus in perfect position. July 28, 1904. Uterus in perfect position.
9. Mrs. M. December 4, 1901.	May, 1903. A boy.	July, 1904. Uterus in perfect position.
10. Mrs. B. October 25, 1902.	March, 1904, a girl.	July, 1904. Uterus in perfect position.
11. Mrs. S. February 26, 1902. Did trachelorrhaphy and anterior and posterior, colpor. and per.	December, 1903, a baby.	July, 1904. Uterus in perfect position.
12. Mrs. C. May 27, 1902.	March, 1904, a baby girl.	August 26. Uterus is in perfect position.

of the expanded and spread-out ligament at its origin at the external ring, gradually and carefully pull them together, so as to get a better hold of the stronger and bigger part of the ligament in the canal, and carefully pull it out three or four inches, as the case requires; in fact, until the body of the uterus can be felt against the abdominal wall; cut off the frayed and bruised part of the ligament, and fix the stump to the pillars of the ring. The canal is never opened deliberately, and is only nicked or slightly opened when the ligament does not pull out easily; and the internal ring and abdominal cavity is never opened under any pretense whatsoever; in other words, the Alexander operation is restricted to that class of suffering women—by no means small—who have retrodeviated uteri without adhesions and without appreciable tubal and ovarian involvement, in whom a pessary has been worn with discomfort, or has not been tolerated with satisfaction; and after ten years of increasing experience, I can truthfully say that no operation in the whole domain of surgery has given me happier and more satisfactory results. Failures have occasionally occurred, but they have been so few that the grand total of successes makes me ever ready to recommend this simple operation without mortality, and easily performed by any surgeon who can be trusted to do satisfactorily any operation—where a little care and patience are required—when once its technique is understood.

DISCUSSION.

Dr. Albert Goldspohn, Chicago.—I am glad to hear one other respectable report of cases of retroversion of the uterus treated surgically, because the majority of the reports on this subject are not quite respectable. They are incomplete, because the authors have not observed their cases to a sufficiently remote time after the operation to that point where the crucial test for all these operations comes—namely, in childbirth; and particularly the observation of the patients after that with reference to the position of the uterus. All the cases of retroversion that have been operated on should be tested by what I call the double test of pregnancy. The simple test is that these patients make a good primary recovery, that they have no trouble afterward, and do not have difficult labors. But to dismiss them from attention here is not sufficient. This is what, I am sorry to say, many operators are still doing. The necessary double test is to note that their uteri remain in normal anteversion months

and years *after* their subsequent childbirths. Retroversion of the uterus is not a serious complaint; it never kills any woman, and surgery is not the only treatment for it. Therefore, when we relieve a woman of a retroversion merely, and that only temporarily, until the next baby comes, we are hardly justified in advising any operation at all. That is my view of it. The results of surgical treatment of retroversion must be curative beyond that point, otherwise it is questionable whether surgery is a proper remedy.

With regard to the challenge of Dr. Hayd, he has reported twelve cases, but he did not say whether these are all the cases of pregnancy that have occurred in his experience.

Dr. Hayd.—That is my whole experience on this topic.

Dr. Goldspohn.—That point is answered. Dr. Hayd admits, however, that some of the women who did not get pregnant, had a return of the retroversion independently of pregnancy. That I regard as a defect in the observation. I have one such patient in some three hundred to deal with, in whom a sufficient degree of retroversion recurred to need a pessary. Certainly, without this greater test of parturition following, these patients should stand invincible against any return of retroversion. My challenge, therefore, to Dr. Hayd still stands, as to too frequent recurrence of retroversion among his simple so-called extraperitoneal Alexander cases that did not become pregnant afterward.

The Alexander operation, as taught, is considered purely extraperitoneal, but it is not strictly extraperitoneal, because any man who does the simple Alexander operation and works out the ligament say four or five inches, will find an opening in the peritoneum nearly always if he examines around the base of the ligament so developed. If you simply put your finger into that opening and reach down, you will be surpised what a gap (internal abdominal ring) nature has made there on both sides. You reach down into the culdesac to the insertion of the sacro-uterine ligaments, without any dilatation almost; and I have done this hundreds of times.

Dr. Hayd referred to simple selected cases. Well, how many are of that character?

Dr. Hayd.—A good many.

Dr. Goldspohn.—But there are a great many more that have adhesions, that have some inflammatory disorganization of the appendages, and the reasons that call for operation in the compicated cases are much greater than those calling for operation in simple cases. The majority of the simple cases can be carried along with pessaries. The simple Alexander operation is a competitor of the pessary, and is not on a very much higher plane than that. When we can do more thorough work, after having made a hole in the peritoneum anyhow, I cannot comprehend why

we should not do it. The inguinal ring is wide enough to insert one finger or two, if we want to, without incisions, simply by stretching. The simple Alexander operation does good to a small number only, who don't need such help very badly, while my procedure gives the superior benefits of bi-inguinal shortening of the round ligaments, to the much larger class of real sufferers who do need surgical relief very badly as their only salvation from invalidism.

All other operations for this purpose, excepting the Gilliam round ligament suspension, are ineffectual, for the following reasons: the round ligament is a good deal like some penholders, *i.e.,* much thicker at one end than at the other. A German investigator, who has examined a great many of these ligaments in dead bodies, came to the conclusion that the round ligaments near their origin from the uterus, are from six to nine times stronger there than where they become extraperitoneal, but are still intra-abdominal. Again, all the shortening of any of the round ligaments any man can do by a ventral incision or through the vagina, is always doubling up or looping of the thick end of the ligament while the feeble portion remains as vulnerable as ever. It is not possible to get at the extraperitoneal thin portion, which does the stretching, and it will stretch again. No chain is stronger than its weakest link, and if there is any disposition for retroversion to recur, this ligament so shortened will not prevent it. It is anatomically impossible to eliminate this weaker distal end except by meeting it from without inward, via the inguinal canals. That is a cardinal anatomical fact that can never be shaken, and that declares in favor of shortening the round ligaments through the inguinal canals. It does not make any difference what other method is used in shortening, whether the ligament be implanted upon the uterus in front, or behind it. All these things are irrational, because they leave the vulnerable portion just as vulnerable as ever. That, and some other things, are the anatomical facts in favor of the Alexander operation, which are now appreciated most by European gynecologists on the Continent, at least sufficiently to make it the operation of choice for uncomplicated retroversions in most of the university clinics in Germany.

Why do I say that in simple cases also I will open the rings? For this reason: I know from observation of at least a hundred and fifty cases that about every fourth to fifth individual ligament that I shorten, at first by the usual extraperitoneal method, when I think I have it out long enough, say five inches, and according to the usual technic I would begin to stitch it down and close the wound. If, instead of doing that, I now put an index finger through the slit in the peritoneum which I and everybody else tears, place it behind the fundus uteri and pull upon the ligament, I have drawn out seemingly sufficiently, I find that I do not make any direct impact on the fundus of the uterus at all, but I am pulling from the broad ligament half way approx-

imately between the uterus and bony pelvic wall. Anyone can see how that mechanism can do very little good in holding the uterus if there is any disposition for it to become retroverted. But if I draw the ligament out and dissect it out of the anterior blade of the broad ligament, which pulls up into view, I will liberate the round ligament from the broad ligament and change its course from a lateral one to a more directly forward one and get the thick portion of the ligament alone to act in a direct manner from the uterus forward, and not in a circuitous or indirect way. That feature I can demonstrate to anyone who will follow me in this work in a few cases. It takes but a few minutes to do this. There is a slight stretching, but sometimes there is none at all, of the internal ring during this procedure. I can say that out of a large number of cases I have only had one recurrence of retroversion. Now, I would further demand of Dr. Hayd that he give us a report of his other cases also, those who did not have children afterward. We must have every individual case that has been operated on, if it is at all accessible. An effort must be made, time and money spent, as if the person had committed a crime, to do this, and we can search it out in nearly all of them if we make the proper effort to do so. I keep a record at home; and those women are charged to keep me informed of any change in their address and when they have any complaints. Of course, this makes a lot of work, but it is for a scientific purpose. We want to know the facts about every individual case, and not of certain ones that are picked out. Dr. Hayd gave us all the cases that became pregnant; but I want a history of all the others, too, with the anatomical condition in every one that can be reached.

As to the diagnosis and indications at the outset of complicated cases it is important to know the condition of the appendages, whether they are aseptic or not, so that intra-abdominal work by touch alone will be safe. Adhesions of adnexæ *without pus* can be distinguished, by competent hands, from adhesions *with pus or its equivalent still remaining,* notwithstanding the denials of some who have not acquired the proper skill in examination. It requires a *gynecological* diagnosis, it is true, but this can be made, and as it is possible to make out safely enough usually whether infectious elements are or are not still remaining in most cases of retroversion with adhesions; therefore, we can give to the large class of such cases in whom infection has died out, the superior benefits of inguinal shortening of round ligaments, because, being aseptic, their adhesions, etc., can be dealt with efficiently and safely by such alone without sight, as is also done by other routes of approach. But patients in whom actively infectious elements cannot be safely regarded as absent; furthermore, cases in which a diseased or very suspicious appendix vermiformis or some other disorder demands a ventral median section; again, cases with extreme adhesions (having tubes too badly disorganized to serve for conception), and cases of pro-

lapse in whom the sacro-uterine ligaments are too much elongated—all these I treat by median section and round ligament suspension á la Gilliam.

There are others who do the Gilliam operation for nearly all of these cases, and never do the Alexander. I pray that these gentlemen follow their cases that become pregnant and report their condition months or years after delivery. If it is found that those patients, as a rule, retain a uterus in normal position approaching nearly the degree of satisfaction in this regard, that we have following the Alexander operation, then my arguments for my procedure become very much weakened; but until this is found in a larger number of women who have had children after the Gilliam operation, the Alexander stands as heretofore with all anatomical and clinical arguments in its favor, in full force.

Two years ago seven operators in Europe and three in America—Burrage, of Boston; Edebohls, of New York, and myself,—together had a collection of eighty cases which had been carefully examined after one or more childbirths following an Alexander operation. The majority of them were ordinary Alexander operations; and out of these eighty cases examined, after one child, and some of them had two or three children, there were two recurrences of retroversion in cases that had a marked prolapsus uteri, and were treated by the Alexander operation experimentally. I have always ruled out prolapse cases on account of the undue elongation of the sacro-uterine ligaments, because these ligaments must have a sufficient degree of shortness to make shortening of the round ligaments a rational procedure. So we can say, that out of a large collection of cases, there were practically no recurrences of retroversion after passing the double test of pregnancy, and all the world of other operators counted up only seven ventrofixations and ventrosuspensions examined after subsequent childbirth, and four of these had a return of retroversion.

Dr. H. W. Longyear, Detroit.—The hour is so late that I shall not discuss this subject very extensively, although I could say a great deal upon it. I have been exceedingly interested in Dr. Hayd's reports, as I have done some work in this line myself. My method is a little different, but the end obtained is the same, that is, shortening the round ligament extraperitoneally and using its thickest portion to bear the weight. The point made by Dr. Goldspohn in regard to that is very pertinent. Shortening the ligament where it is attached in the canal does away with the strain that has to be borne by the thin portion. My method is what I term the blunt hook method, that is, simply making a short incision through the skin about one inch in length, and dissecting with blunt hooks down to the aponeurosis of the external oblique, making a puncture one-quarter of an inch long, reaching in with blunt hook and drawing out the ligament. I thus

attack the ligament at the thick portion in the canal, where it is more easily found and handled. This portion may be thin in some cases, but as it is drawn out the thick portion appears. I do not know what method Dr. Goldspohn uses for detaching the ligament from its fibrous attachments to the canal; but he surprised me very much when he said he could draw out the ligament as far as possible without pulling the uterus forward. In such cases he apparently does not draw it out properly; if he does, he would draw the uterus forward without the slightest trouble. The feeblest touch on the ligament then is immediately carried to the uterus. It is simple to demonstrate.

The method I use in stripping back the attachments in the canal is this: I grasp the ligament after drawing it out through the little opening in the aponeurosis, with my finger, and then take a pair of dressing forceps which I have made with blunt rounded ends, so that they will not lacerate the tissues, and pick up the presenting part of the fibrous attachments, strip them back, drawing the ligament up at the same time, and it comes out nicely, and I am sure I do not lacerate any of the tissues back of it. I never have put my finger into the canal and internal ring to ascertain if I have gone into the peritoneal cavity, but I do not see how I can do so by that method. We do not usually go into the peritoneum so easily in any other place. I do not put anything in there that will lacerate it or do anything that will cause trouble to come from it. When the infundibular process is seen, it is stripped back as you would strip back the finger of a glove in taking it off. The ligament is brought out to its fullest extent, and it pulls the uterus forward, as can be easily demonstrated.

I agree so perfectly with Dr. Hayd's findings and his results are so similar to those in my own cases that there is little to be discussed. I have been informed of four pregnancies in my patients following this operation, two of which I reported a year ago, and two have been reported to me since. I do not attend cases in confinement myself, excepting in consultation, but these were attended by professional friends who reported the cases to me. In one of the cases, confined since I made my report, I examined the uterus and found it in perfect position three months after confinement.

Dr. Goldspohn spoke of keeping records of all cases. I think we all do this. I presume there is not a man in this room who does not keep as accurate records of his cases as he possibly can. We all keep them with sufficient accuracy to demonstrate scientific work. It is true, we cannot control all of our cases by any means, especially the clinical ones. At least it is difficult to do so. You may tell a patient to come back very often, but she will not do it simply because you tell her to do so, consequently there must be discrepancies. We cannot help them. We cannot hope to attain such scientific accuracy as Dr. Goldsphon calls for. I do not know of any surgical procedure under the sun

that is not subject to some failures. It is a sense of relief to me to find that Dr. Goldspohn has had one failure!

Dr. Goldspohn.—In connection with the remarks just made by Dr. Longyear, I want to make the declaration that I do not draw the ligament out by stretching it. It is a mistake if Dr. Longyear thinks I do so. I dissect it out.

Dr. D. Tod Gilliam, Columbus.—I shall detain the Fellows of the association but a few moments. I am willing to accord the Alexander operation a very important place in simple or uncomplicated retroversion of the uterus. I have also great admiration for the operation of Dr. Goldsphon. It subserves a double purpose. He not only does all that can be done by the Alexander operation, but he is able to see what is inside the abdominal cavity, and in many instances to deal with it. I have so frequently been misled by conditions in making an ordinary gynecological examination, and have known so many expert diagnosticians to fall into error, that when I find a condition of the abdominal or pelvic viscera which requires any operative procedure that affects the relations of the parts, I am willing to go in where I can see and feel and know what is there and what it portends.

I have had cases fall into my hands in which first-class surgeons had recommended the Alexander operation, and which upon exploratory incision disclosed the absolute irrelevancy of such an operation. I have now in mind a case of a most talented, wealthy and brilliant woman author, who had consulted one of the most eminent surgeons of this country and who recommended the Alexander operation. Now, it cannot be said that this man made a hasty or perfunctory examination, for she was not the kind of a patient that would tempt a man to be careless. I opened the abdomen, found uterus, tubes and ovaries—the latter atrophied—bound down with adhesions so dense as to be like leather and all but defy the skill of man to break up. The operation was one of the severest that we ever encounter, and my patient succumbed to it. I am willing to open the abdomen now in a case of retroversion of whatever type to satisfy myself what is in the abdominal cavity. I have been repaid in doing that. I have found pathologic conditions that would have gone unrecognized, many of which would have left the patient an invalid and some of which would have ended tragically if not attended to. By means of a little incision in the median line, utterly devoid of danger, we are enabled to clear away all mysteries and do effective work.

Generally speaking, when I open the abdomen I take out the appendix when there is anything suspicious about it. Now, here is a matter which is not generally understood. With the natural manner in which the round ligaments are inserted at the sides of the pelvis, the uterus may become retroverted with very slight elongation. This I have seen repeatedly, and have found the

ligaments so tense with retroversion that they could not be gathered up. It shows that the natural insertion of the ligaments is not the best safeguard against retroversion. In the operation which goes by my name retroversion is impossible. The uterus is not suspended; it lies upon the bladder as in the normal condition. It has all the motions that are necessary, it rides up and down on the bladder, swings from side to side, pregnancy goes on, the ligaments elongate and enlarge, and there is no distress. If parturition occurs, there is no dystocia attributable to the operation and the woman goes through the whole process normally. I agree with Dr. Goldspohn that these intraabdominal operations in which the ligament is doubled on itself are faulty, because all the traction is exerted on the thin end of the ligament, the giving of which was the primal cause of the trouble.

In my operation the thin part of the ligament is thrown out of commission. Supposing this (indicating) represents the abdominal wall: I use the thick part of the ligament to anchor the uterus, while the thin part (illustrating) has nothing to do with sustaining the organ. The uterus swings there naturally; the ligament never gives way. If you leave an inch and a half of ligament it will elongate during parturition; if you bring the ligament up close to the abdominal wall, the ligament cannot develop and there will be trouble. There is a field for the Alexander operation as recommended and practised by Dr. Hayd and others. And there is certainly a large field for the Goldspohn operation, but, as I conceive, there is a broader field for the round ligament suspension through the median abdominal incision.

Dr. Hayd (closing the discussion).—There is very little further to discuss on this subject at this time. The object of my paper was not to discuss either the Gilliam or the Goldspohn operation. It was simply to demonstrate that it is possible for a retroverted uterus to exist uncomplicated with tubal and ovarian mischief; that such a uterus will conceive, that the woman will go on to the termination of uterogestation, and be delivered without any difficulty, without any complications, and that her uterus will stay in place afterward. That was the position I took in Cleveland, and that was the statement that Dr. Goldspohn challenged.

When we discuss the difficulties associated with diagnosis, you and I agree; but when the attempt is made to make intelligent men believe that we, who are supposed to be specialists in gynecology, must cut the belly open to find out whether a tube or ovary is diseased, or the uterus adherent, it seems absurd. Occasionally, but very, very rarely, we will make a mistake. Even if we do make a mistake there won't be a pus tube, an ovarian abscess, or a dermoid cyst. It may happen to some so-called surgeons; it will not happen to Dr. Gilliam, to Dr. Goldspohn, or any other intelligent man here. When it happens, it will happen in the practice of men who should not operate. There are

men operating to-day who have not the first qualifications for surgical work. Mechanically, they may do their work fairly well, but they have no diagnostic ability whatsoever. They should not be permitted to operate, and yet we stand by, let them operate, and never raise any objection; even in the hospitals that we are connected with, we go into the operating room and find a man operating on a lacerated cervix, and there isn't any laceration; or he is opening the abdomen for supposed disease of the tubes and ovaries, when there is nothing wrong with them, and yet we do not as much as open our mouths. Truly, we ought to be ashamed of ourselves.

I feel not a little surprised, even a little bit hurt, to think that after the effort which I made here to-day in bringing to this association a report of my cases that Dr. Goldspohn is not magnanimous enough to believe such a number of cases could exist with every man if he is doing the Alexander operation. Surely, I have no cinch. I cannot do this operation better than Dr. Longyear or Dr. Brown. If twelve of the women I have operated upon have become pregnant, twelve of Dr. Longyear's are liable to become pregnant. There does not seem to me to be any room for discussion on that point. If Dr. Goldspohn is going to make a comparison between the Alexander operation as a competitor with the pessary, then he is opening another field for discussion. What is the use of my taking valuable time to affirm the advantages of a simple operation over the wearing of a pessary?

There are difficulties associated with pessaries. There is inability of pessaries to hold some uteri in position, and it is in these cases that the simple Alexander operation is applicable. It will cure these women absolutely of retroversion. Occasionally the operation will fail. The more experience a man has, the fewer will be his failures, and if Dr. Goldspohn does not have any failures following his operation, I cannot help but feel that he does not examine his cases, or his enthusiasm makes him blind to some of his failures. I have done a lot of hernia operations; I have had pus following them; I have had them fail. Everyone in this room has had failures. If a hernia operation is going to fail, then Dr. Goldspohn's operation necessarily must have hernia associated with it. Sometimes, as he makes an opening for a hernia, it cannot be otherwise. Because Dr. Goldspohn has operated upon two or three hundred patients, cutting the bellies open and sticking his fingers into them, that is no reason why he should try to make us believe that there is no more danger associated with that operation than the one which I do, in which the finger is not put into the belly. It is to meet that class of cases, where it is unnecessary to put a finger into the abdomen, that Alexander devised his operation. I cannot come here and give you detailed histories of all of the cases I have operated upon. I simply say that in my surgical experience I find a place for the simple Alexander operation in a large number of cases. If I am enthusiastic about this operation, I am not any more so than other men who are performing it in appropriate

cases. Every one of them with whom I converse usually speaks in the same way if they have done many of these operations.

It appears absurd for me to discuss this phase of the question with Dr. Goldspohn, when he says that the canal is opened in every case, or that the peritoneal cavity is opened in every case when one pulls the ligament out. That, to say the least, is not my experience. If, however, it is a fact, I never tried to find it out by putting my finger into the belly or by tearing open the canal to do so.

Dr. Goldspohn.—That is why you don't know the fact.

Dr. Hayd.—What is the object? I have pulled the uterus forward in a condition of anteposition which can be demonstrated. If I take hold of the ligaments in a thin woman and pull upon them, the body of the uterus will hit the abdominal wall. Then, of course, it pulls the uterus forward, and that is why it remains in position if properly fixed forward.

I do not want to disparage Dr. Goldspohn's work. I realize that he has brought forth an operation which has been accepted in the university clinics of Germany, and by many men in this country. I am not contesting that point. The question I am contending for is that there is a large class of suffering women in whom a diagnosis can be made with certainty, and on whom an operation can be performed without opening the peritoneal cavity, which will succeed in curing them of their distress, and which, again, will guarantee for them a proper and permanent anteposition of the uterus after delivery. I do not recall any one condition in the whole practice of medicine which is capable of producing so much suffering and invalidism as an ordinary retroverted uterus,—infinitely more, of course, if the tubes and ovaries are involved. Therefore, if a large class of women can be relieved of their suffering without opening the abdomen and opening the rings and canal, why not try to learn how to do this simple little operation? For it is simple after one has once learned how to do it and, as I have proven, permanent and satisfactory.

Dr. Goldspohn.—May I say a word more, Mr. President, in reference to some statements that were made by Dr. Hayd in his closing remarks?

The President.—Continue, Doctor.

Dr. Goldspohn.—I hope that Dr. Hayd did not mean to say that he questioned my statement in regard to the anatomical findings in my cases, which I have traced carefully at the expense of much labor and not a little money, and that have been corroborated by the collateral contributions of other men who understand gynecology? I do not think he will question what I state as anatomical facts, with such respect as I have for science and accuracy of scientific records. You do not think, Dr. Hayd,

that I am so enthusiastic that I have cases of retroversion that I do not report?

DR. HAYD.—I do not think you would do that.

DR. GOLDSPOHN.—I have followed every case I possibly could, and that was old enough, because of the opposition on this subject. There are cases that have not gone through the revision period yet. A woman may say that she feels well, but that is no proof that she has no return of retroversion.

As to hernia following my operation, I can say positively and most emphatically that it has not followed this work. Our official stenographer knows what challenge I have made at home, and it still stands—namely, that if any man finds a hernia following my method of operating on these cases, I will give him a hundred dollars.

I deny that introducing the finger into the inguinal canal is any more dangerous than in not introducing it. All operators know that hernia work, cutting, dissecting, etc., in that region requires a higher degree of surgical cleanliness than work inside the peritoneum itself. The peritoneum is able to take care of infection better than connective tissue and muscle in the abdominal wall, and fat the least of all. Therefore, if I am clean enough to make a hernia wound that heals on both sides in practically every case, then I am clean enough to put my finger into the peritoneal cavity.

A UNIQUE CASE OF CIRCUMSCRIBED INFECTION OF THE PLACENTA AND EXCESSIVE VOMITING; WITH REMARKS ABOUT HYPEREMESIS GRAVIDARUM.

By A. GOLDSPOHN, M.D.,
CHICAGO.

The extremely hidden and rare form of infection that existed in the following case makes it worthy of record, and its occurrence, together with hyperemesis, demands consideration, even if it have merely an accessory causative relation to the latter condition.

Mrs. A. L., aged 19 years, a farmer's daughter and a school teacher, was always a healthy girl, and had no disease, aside from measles at six years, scarlet fever at seven years, and whooping cough at ten years of age. There is no neurosis nor other hereditary taint discoverable in her or among her nearest kin. Menstruation began at 12 years of age, and recurred every month after that until March 1, 1904, twenty-five days after marriage. It lasted usually six days, and was rather profuse, but painless. There was usually no pain in the lower part of the body, nor leucorrhea, during the intermenstrual periods. About one month after the time of her last menstruation she began to vomit after most meals, and sometimes also between them. The patient says that the matter of being pregnant was not unwelcome to her, but that she wished for it. She declares positively that no one made any application to her womb, nor introduced anything into the mouth of it, nor gave nor advised anything to take or to do to bring on a flow, and the family physician, a most estimable lady, says that she, from a knowledge of the patient and her family and surroundings, is convinced and willing to certify to her belief under oath that nothing of that nature occurred. Recumbency during and after meals made the trouble a little easier, but medicine did not afford relief.

This condition continued and grew worse until the uterus was emptied, on June 27, 1904, three and a half months after her last

period. From the lassitude, headache, soreness in the extremities, and occasionally chilly sensations that previously existed, it is probable that she had more than normal temperature for a month, at least, previous to the last three days of irregular chills with temperature ranging from 102° to 105°, with a pulse of from 120 to 135 per minute. She says that a colored discharge, small in amount, has existed for two months, but that she noticed no odor nor uterine contractions. Her physician, however, observed a scant, but very offensive, discharge on examination, during the last few days. The patient says that she lost twenty-five pounds during the last two and one-half months.

Examination.—The patient is a slender, poorly-nourished, but not markedly anemic woman, weighing about 125 pounds, with the thoracic and abdominal organs normal aside from the stomach, and the urine showed a slight amount of albumin. Her pulse at the time was 126, and temperature was 103½ degrees. The abdomen was not distended, and only showed a little tenderness over the pelvis. Bimanual examination discovered the uterus in size, shape and consistence corresponding to a pregnancy of from two to three months, with nothing abnormal about its position or mobility, and no changes in the external os or in the cervical canal other than those that are peculiar to a normal pregnancy. But the tenderness to palpation was markedly increased in the uterus, and a foul odor was found arising from a little colored discharge upon the finger that was squeezed out of the cervical canal.

Operation.—After a dose of Parke, Davis & Co.'s aseptic ergot had been given and the patient anesthetized, the cervical canal was dilated, not by divulsion, but by round and slightly conical steel cervical and rectal dilators, sufficiently to admit one finger readily. Through the membranes, which were intact, the small fetus could be palpated, but the placenta, which was attached upon the side of the uterine wall, presented a soft or seemingly detached spot upon its border. After irrigating the part of the uterine cavity so far explored with 2-per-cent. lysol solution by means of a Prager return-current uterine douche tube, the placenta was detached by an index finger, which was rendered sufficient in length by the outside hand, which crowded the uterus downward. This fixed it in such position that the more firmly attached parts of the placenta could not escape and all parts of the uterine cavity could be explored. The contents were then removed by the aid of lithotomy and placenta forceps, and the uterus washed out

with 1-per-cent. lysol solution. It contracted well. After another digital exploration it was again irrigated, and then loosely packed with iodoform gauze, the vagina likewise being tamponed with the same material.

The placenta was obtained quite completely and in one piece, with only small fragments removed in the second exploration. Upon the edge of the placenta was a distinctly circumscribed area, of the size of a twenty-five cent piece, of soft, structureless, partly liquefied tissue, of grayish color, and giving off a very offensive odor. This septic mass was observed by all the assistants present, but unavoidable circumstances prevented the preservation of a specimen or the making of a culture for bacteriological diagnosis.[1] Several hours after the operation the patient had another severe chill, and temperature rose to 105°, showing that the three lysol intrauterine irrigations given before and during the extirpation of the placenta had not succeeded in preventing the entrance of some septic material into the veins. But this temperature soon dropped and continued at a low range, without chills or nausea, for about a week after operation, when the patient was quite bright and made a good recovery, without remaining foci of infection in the pelvis or elsewhere.

In the literature allied to this subject, without an exhaustive search in the post-mortem reports, I have not found another such case discovered *during life*. But in the following fatal cases of hyperemesis gravidarum similar and other results of infection were observed post-mortem. Jardine,[1] Glasgow, in an autopsy upon one of these cases, found an abscess in the pelvis of the right kidney, blood in the stomach and purpura hemorrhagica. Lindemann,[2] Solowief, in another case observed fatty degeneration and cloudy swelling in the liver and spleen, and in the kidneys cloudy swelling and beginning coagulation necrosis, chiefly in the convoluted tubuli uriniferi. Ludwig Pick,[3] in the best contribution on this subject, reported twenty-two cases of this infection treated in Schauta's clinic; and in two fatal cases the following was found: (Case 6) "Inflammation deciduæ purulenta" and septicemia, with an ovum of three months intact. This is commented upon by Behm as an extremely remarkable case. It is anatomically almost identical with my case above reported, but clinically, nothing is said of chills, and no discharge, at least not of a foul character, was noticed; therefore, no operative interference was instituted, and as in all other cases, the morbid condition was not discovered during life. In the other case of Pick (No. 22) a puru-

[1]At a private house in a country town, and in haste to reach an only train.

lent diphtheritic endometritis and an enlarged spleen were found, along with syphilis. It is clear that the very unusual pathological conditions that existed in my case and in others do not belong to the regular category of emesis nor of hyperemesis gravidarum, but they are accidentally aggravating morbid processes, whose proper place in the etiology of this disease will appear after a consideration of the most rational theories of its pathological nature.

The theory of Kaltenbach[4] that it is a functional neurosis, that is, hysteria, is manifestly incorrect, for most of these patients bear no hysterical stigmata at any time, and ordinary emesis of pregnancy is more frequent than hysteria, while hyperemesis is not as frequent in its occurrence. The theory of Ahlfeld of exaggerated nervous irritation of the stomach arising from a multitude of gynecological disorders and abnormalities in the pregnant uterus itself is the view that has been most generally accepted, and it comes more nearly to being correct than any other heretofore advocated. It is plausible enough in cases where abnormal conditions in or about the uterus can be discovered as sources of irritation, but it is not so in those where this is not the case, but, nevertheless, present severe emesis; nor does it account for the reason why the copious use of normal saline solution does so much good in their treatment. Again, Dirmoser[5] advocated a theory of autointoxication which, he claimed, arose from fermentation of carbohydrates in the stomach and from decay of albuminous products in the intestinal canal, arising from coprostasis incident to the enlarged uterus. If this were so, then the vomiting should be worse and more frequent during the second than the first half of pregnancy; and it should be present also in cases where tumors of a different character impede the intestinal canal. Furthermore, it is not really possible upon this hypothesis that emptying the uterus should stop the vomiting usually at once.

The actual pathology of emesis and hyperemesis gravidarum is probably pretty nearly discerned by the theory of Baisch[6], supplemented by that of Behm,[7] both of which were recently promulgated. The former holds that the ovum is the true and only regular source of origin of some unknown (possibly chemical) substance that would be transmitted through the blood, or that the chorionic villi cause a nervous irritation in burrowing into the endometrium, and that either the unknown substance or the functional nerve irritation, or both, cause vomiting in a reflex manner by acting upon the vomiting centre in the medulla. He regards the element of reflex action (via the nervous system) as

indispensable in this process, and makes this, indeed, most plausible by citing that some such impulse of thrift must be conveyed by the nervous organization to cause the enlargement of the mammæ and development of other parts of the body that are associated with gestation. According to Baisch, there are three stations in this process: (1) the growing ovum, and all abnormal uterine and pelvic conditions as accessory or complicating causes; (2) the central vomiting centre; and (3) the motor, or secretory, function of the stomach, or both. An abnormality in either of these three stations may result in excessive vomiting, either by an exuberant impulse or irritation from the first, or from lowered tone or nerve resistance at the second, or from lowered or disordered functional capacity in the digesting apparatus. This view takes in all the pathologically and clinically different types of emesis gravidarum that we meet. Thus, while the growing ovum is the chief source of irritation in all cases, all other morbid conditions in or about the uterus that contribute to the trouble, such as multiple fetation, hydramnios, pathological cervix or cervical canal, displacements of the uterus and abnormal conditions of the parametrium or pelvic peritoneum, are accessory or aggravating causes that intensify the irritation. Then hyperemesis would occur even if conditions at the vomiting centre and at the stomach were normal. In hysterical, neurasthenic and similar neurotic cases the excessive sensitiveness of the reflex centre will induce hyperemesis when the irritation transmitted from the growing ovum is not excessive and the stomach also is normal. And, thirdly, women who have previously been more or less afflicted with a weak or disordered stomach, leaving out now the vomiting which is due to disorders of the brain, can have hyperemesis when the wave or current of irritation is not excessive, and the central transmitting center is also normal. This three-sided or triangular pathology suggests the correspondingly varied nature of the treatment, according to which side in the pathologic process is the more prominent in any given case.

So far the theory of Baisch is quite logical. But he has to assume an unknown factor, namely, what is the nature of the irritation, or, possibly, chemical something that is given off from the growing ovum? This, his missing link, is supplied with a marked degree of plausibility by the theory of Behm, namely, that syncytial elements—cells and buds—are given off from the growing ovum during the first half of pregnancy until the chori-

onic villi on the free surface of the ovum have been shed and the placenta has been fully formed. These cellular elements are held to cause an intoxication of the blood which, acting upon the vomiting centre, causes the emesis.

That these syncytial elements abound in the blood of pregnant women is certified to by R. Veit,[8] C. Ruge,[9] Gottschalk,[10] Poten,[11] and others. Veit and Gottschalk have tried to make it account for the kidney of pregnancy, and for albuminuria occurring during premature detachment of the placenta. The former author has noted the occurrence of exfoliated cells from the chorionic villi in the pulmonary arteries of eclamptics. But Carl Ruge says these cellular elements are too generally found in the blood of pregnant women to have any etiological bearing upon eclampsia.

A knowledge of what these estimable investigators had found, on the one hand, and a striking experience on the other, that normal salt solution very carefully, frequently and persistently administered by the rectum—so useful in septic cases—was uniformly successful in his hands in abating this hyperemesis also; these several facts were the basis upon which Behm projected his theory. He treated two severe cases of hyperemesis gravidarum and four milder ones, all of them having no abnormalities in the pelvis, with normal salt solution by the rectum, with uniformly good success. He tested its action in severe cases by interruptions and temporary substitution of other remedies, in such a manner as to preclude the possibility of mere suggestion figuring in the effects of the remedy, which can be excluded. The patients were kept recumbent in bed. Each morning they received first an evacuating enema, and after that one-third to one-half liter (about a pint) of the lukewarm salt solution every two hours. Very marked improvement followed in all cases at once, and the disorder subsided in the first severe case in fourteen days and in the second in six days. During the most of this time, at first iced milk in small quantities frequently given and, later, light diet were well received.

The view of Baisch that the growing ovum is the source of the irritating something, and likewise the theory of Behm that that something is composed of the epithelial elements from chorionic villi, are both strengthened by the fact repeatedly observed that the vomiting in such cases has not ceased after abortion even, until some remaining diminutive remnants of placenta were carefully and completely removed. The fact that primagravidæ suffer from this disorder more than multigravidæ Behm explains by as-

suming some degree of immunity acquired by previous gestation and increased by repetition of the same.

He calls attention to the fact also that his so-called physiological theory of the cellular syncytial elements circulating in the blood during the first half of pregnancy does not account, unaided, for three unusual classes of these cases, namely:

1. Where the vomiting does not begin until the second half of pregnancy.

2. Cases in which it does not cease after the uterus is emptied.

3. Cases that die although vomiting has ceased.

But he explains these quite plausibly as due to accidentally complicating or aggravating organic lesions occurring in some part of the body, and bearing in their evil effects upon either the pelvic organs or upon the vomiting centre or upon the stomach. As such pathologic accessories, he mentions the following:

1. Disorders of the brain, kidneys, liver, gastrointestinal canal and peritoneum that, he admits, do not strictly belong in the category of hyperemesis gravidarum.

2. All the numerous abnormal conditions about the cervix uteri, cervical canal, the endometrium, the uterine walls as to tension and otherwise, and abnormalities in the position and condition of the uterus and its adnexæ and pathologic states of the pelvic connective tissue planes and peritoneum, all of which have repeatedly been blamed as the *essential,* instead of accessory, causes of the hyperemesis, chiefly by the large majority of authors who believe, more or less, in the reflex theory.

3. Septic infection chiefly in or near the genital tract supplementary to the syncytial intoxication. In this category belongs the unique case with the report of which, in vivo, this article begins, and two post-mortem cases of L. Pick[3] also mentioned above.

4. Autointoxications chiefly from the gastrointestinal canal (theory of Dirmoser stated above).

The two methods from which I have seen the best results in this disorder in past years are: (1) complete and absolutely constant recumbency in bed, with all possible exclusion of everything that might annoy, worry or excite the patient. (2) Copious vaginal drainage of water from the pelvis by means of an ample packing of sterile gauze so placed around the cervix and loosely distributed throughout the expanded vaginal cavity as to secure contact with the largest possible surface without objectionable pressure anywhere. This packing is made to take up at least two ounces of boroglyceride, and it is renewed about every third day.

In the extreme cases I have seen almost no good from the many drugs recommended and given by mouth. In two such cases, however, that were rapidly approaching a condition of marasmus, I am satisfied that life was saved by dilating and speedily emptying the uterus under an anesthetic, using a finger chiefly as a curet. A battery and a boiled rectal electrode for introduction into the uterus were ready to secure prompt contraction of the uterus afterward, if necessary, by interrupting a gentle galvanic current. Possibly this interference might have been avoided in these cases had the rectal use of normal salt solution for this affection been known at that time, and carried out in the manner that Behm demands. A less assiduous manner of administering this remedy probably accounts for the more indifferent results which some others have obtained from it.

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DISCUSSION.

Dr. H. W. Longyear, Detroit.—The essayist has given us a report of a very interesting case, and he has brought out the matter of infection in a very excellent manner. I have not had a similar experience that I recall; but I had one a short time ago, in which I was obliged to empty the uterus, and tried treatment with normal salt solution, without any beneficial results. I kept the rectum as full of salt solution as I possibly could, and also used a tamponade of boroglyceride. It was only two months ago I had this case. The patient was an extremely neurotic individual, which may have had something to do with the matter. At all events I think it had. Her mother was about the same type of individual, who took care of her, and perhaps the treatment was not followed by good results on that account also.

Dr. O. H. Elbrecht, St. Louis.—The essayist spoke of two cases in which he has had to empty the uterus, and which were treated successfully with normal salt solution. I would like to ask whether he would classify them as cases of hyperemesis gravidarum? I have only seen one such case. I believe Dr. Schwarz has had some cases and we would be glad to hear from him on this subject.

Dr. Henry Schwarz, St. Louis.—I do not feel prepared to discuss this paper very much at this late hour in the session. I believe all of us have thought at one time or another that we knew how to cure cases of hyperemesis gravidarum, and yet every now and then a case will come up which will not be relieved by any of the known remedies. The uncontrollable vomiting of pregnancy, like other conditions for which a great many specifics have been recommended, is not controlled by any of them. I do believe, however, that the injection of salt solution into the rectum undoubtedly cures a number of these cases. Twenty years ago carbonic acid was used for the same purpose, and every now and then we have had specifics which have cured a number of minor cases, but in spite of these so-called specifics we know that there are certain cases that can only be saved by emptying the uterus.

As regards Behm's theory, I do not believe it should be taken seriously. The presence of syncytial buds or elements and chorionic villi in the circulation is much more likely to help to explain eclampsia than hyperemesis gravidarum. These elements are found in the blood of all pregnant women, yet of the millions who pass through that condition only a very small percentage is affected with the severe form of vomiting.

Dr. Goldspohn (closing the discussion).—I desire to say a word or two in regard to the use of normal salt solution per rectum. Behm's technic of this is more persistent and perfect than I would have made it before I read Behm's directions.

I do not like to take time with details. However, I would say that there was probably a technical reason why Dr. Longyear did not get a more favorable result in his case. As to what constitutes hyperemesis: from the use of the term by others in the literature, I judge it to be more than ordinary emesis.

Dr. Elbrecht.—Do you regard those that you treated successfully as cases of hyperemesis gravidarum?

Dr. Goldspohn.—Yes, and not simply those that require operative interference. Cases overstepping the normal ordinary boundary I would call hyperemesis gravidarum.

I do not think Dr. Schwarz's argument in regard to refuting the Behm theory accomplished its object. The cross tests which Behm and others made excluded the purely psychologic element of suggestion, and as there is no other way to account for the results, it seems to me as fairly proven, as we ordinarily accept such clinical phenomena as established.

ANTISTREPTOCOCCUS SERUM IN PUERPERAL SEPTICEMIA AND SCARLET FEVER.

By ALBERT G. HAMILTON, M.D.,
SPRINGFIELD.

When I announced the title of my paper for this meeting it was my intention to give a brief history of the antistreptococcus serum, from its discovery by Marmorek to the present day, together with records of its successes and failures, and why its use has not been attended with the same success accorded antidiphtheritic serum; but in view of recent articles in the leading medical journals touching this point, it seems unnecessary to discuss further the subject so familiar to all. My paper, therefore, will deal exclusively with cases coming under my own observation, in which I shall endeavor to point out the indications for the use of this serum, and to show that in selected cases its employment is attended with as certain and definite results as that of its fellow, the antidiphtheritic serum.

Since the discovery of serum for the treatment of diseases, the various investigators have endeavored to demonstrate that all diseases infectious in their nature could be made to yield to an antitoxin, which, when injected into an individual affected with such a malady, would produce a degree of immunity against the further action of the germs and, by inhibiting their deleterious effects upon the system, restore its normal functions. Theoretically, no one can deny the truth of their sayings, but practically experiments would tend to show that such is not the case. However, no one will deny that the present low mortality in diphtheria is due exclusively to the timely use of the antidiphtheritic serum, nor that many cases of sepsis have recovered by the use of the antistreptococcus serum. But why should such brilliant results attend the former, while innumerable failures or indifferent results the latter? It is certainly not on account of the greater resisting power of the streptococcus over the Klebs-Loeffler bacil-

lus, for bacteriologists agree that of the two germs, the former possesses the least vitality. We must, then, look to other channels for the solution of this problem. Puerperal septicemia, or puerperal infection, is not, like diphtheria, a disease due in every instance to a specific germ, and therefore cannot be successfully combated in all cases by a serum having only a limited action.

It is true that the vast majority of all cases are caused by the streptococcus, but the staphylococcus, gonococcus, colon bacillus and various mixed infections may produce symptoms so similar that without a microscopical examination of discharges, a differential diagnosis cannot be made. In view of this fact, we cannot, therefore, regard this disease as amenable to any specific medication. Again, by way of comparison, we must realize that in this disease we are dealing with a septicemia, while in diphtheria the constitutional symptoms are due to a toxemia. In the former there is not only the absorption of the bacterial poison, but also the invasion of the bacteria themselves into the living tissues; while in the latter we have only to deal with the ptomaines produced by the bacteria.

In justice, therefore, to any measure advanced for the purpose of combating sepsis, we must be more lenient and, until the present serum treatment has proven itself incompetent to lessen the mortality of this disease, we must at least regard it as a possibility. The following, as I have stated, are selected cases, and, although not the only ones in which the serum was used, they serve to illustrate its unmistakably beneficial action in conditions produced solely, or in large part, by the streptococcus. The serum used in all cases was manufactured by Parke, Davis & Co. and the Pasteur Institute. Before beginning with the case histories, I wish to state that my associate, Dr. J. A. Peters, made careful bacteriological examinations of discharges, and found the streptococcus pyogenes to be responsible for the infection in all the cases reported.

Case 1.—Mrs. J., age 36; mother of six children, all normal labors with uneventful recoveries; family history negative; aborted at three months. A physician was called, who, in removing the placenta with toothed forceps, lacerated the walls of the vagina, and also produced complete laceration of the perineum. Not satisfied with results, a second physician, who was more skilled than the former, was called, and found the uterus entirely emptied. On the fifth day I was called to attend the case, and found an untrained nurse in charge, with no records. The attendant stated that on the third day after abortion, the patient had

a severe chill, followed by profuse sweating and fever. On examination I found a woman with a much distended abdomen, pinched, anxious expression, low muttering delirium, carphology, dry brown tongue, temperature 105°, pulse 130 and weak, extremities cold and clammy, and abdomen very sensitive to palpation. Digital examination revealed a large flabby uterus low down in pelvis and very painful to touch. The lacerations were very extensive, a dark grayish discharge from uterus, very offensive, with a grayish-colored membrane covering lacerations. Microscopical examination of the discharges by Dr. Peters revealed streptococci in almost pure culture with a few staphylococci. The patient was sent to hospital and placed in care of two trained nurses. The following is the history of treatment while under my care:

Aug. 17th, 6 p.m., entered hospital; temperature, 104.6°; pulse, 116; respiration, 38. A rash covered back, sides, abdomen and arms. Ordered strych. nit., $^1/_{30}$ gr., every two hours, alcohol sponge, bichloride $^1/_{2000}$ douche, followed by douche of sterile water; milk diet. At 8 p.m. antistreptococcus serum, 30 cc. Aug. 18th, 2 a.m., temperature, 101°; pulse, 106; respiration, 36; sleeping most of the time. Involuntary action of bowels and bladder; still delirious. At 9 p.m., temperature, 104.2°; pulse, 120; respiration, 40. Gave 30 cc. antistreptococcus serum. Aug. 19th, 8 a.m., temperature, 99.6°; pulse, 98; respiration, 26; mind clearer. At 5:30 p.m., temperature, 103.6°; pulse, 113; respiration, 35; alcohol sponges continued; 20 cc. antistreptococcus serum given. At 10 p.m., temperature, 101°; pulse, 110; respiration, 26. Aug. 20th, 7 a.m., temperature, 101°; pulse, 108; respiration, 24; copious discharge of pus from vagina. At 8:30 p.m., temperature, 103°; pulse, 120; respiration, 26; 10 cc. antistreptococcus serum given. Aug. 21st, 7 a.m., temperature, 102°; pulse, 110; respiration, 24; temperature receded to 100° during the day, but rose to 103.4° at 8 p.m. Aug. 22d, 7 a.m., temperature, 102.2°; at 10 p.m., temperature, 103.4°; pulse, 112; respiration, 28; 10 cc. antistreptococcus serum given. Aug. 23d, 10 a.m., temperature, 100.4°; pulse, 118; respiration, 26. Aug. 24th, involuntary movements of the bowels ceased; pus discharge still large in amount. Aug. 25th, temperature still receding, and reached normal each succeeding day until the 28th, when it remained at this point. Bichloride $^1/_{5000}$ douche used each day; alcoholic stimulation; outside of this treatment no other medication was used but the serum. Patient discharged Aug. 30th completely recovered.

Case 2.—Mrs. S., age 19; primipara. Instrumental delivery on

Feb. 7th; no lacerations. First saw case on Feb. 11th. Gave history of severe chill on night of 10th, followed by sweating and fever. Temperature at this time, 105.4°; pulse, 136; respiration, 24; lochia, pale pinkish, medium amount, mixed with grayish mucus of bad odor. Microscopically it showed streptococci in large numbers, with a few bacilli, probably of the colon variety. Ordered bichloride douche $^1/_{4000}$ every four hours, to be followed by sterile water, and sponging for temperature over 103°; liquid diet; alcohol baths. Did not use serum until Feb. 12th, 2 p.m., when temperature was 104°; pulse, 130; respiration, 24. Temperature fell at 4 p.m. to 103°; body cold and clammy. At 7 p.m., temperature, 103°; chilly. Applied external heat; 11:30 p.m., still chilling; temperature, 105°; pulse, 136. Intrauterine douche of lysol, 1 per cent., every four hours; strych. nit., $^1/_{300}$ every two hours; alcoholic stimulants. Feb. 13th, 7 a.m., temperature, 105°; pulse, 148; respiration, 28; chilling; headache and severe pelvic pains; lochia unchanged. At 8:30 p.m., temperature, 105.4°; pulse, 140; respiration, 28; 30 cc. antistreptococcus serum given; enema of normal salt solution, with good result. At midnight, temperature, 102.8°; pulse, 118; respiration, 20. Feb. 14th, 8 a.m., temperature, 100.2°; respiration, 18; 10 cc. serum given. At 12 m., temperature reached 99.8°; pulse 96; respiration, 19; discharges still of bad odor; douches continued. Feb. 15th, 8 a.m., temperature, 100°; pulse, 96; respiration, 20; slept well after midnight; lochia, yellowish in color, medium in amount; enema of normal salt solution, followed by large bowel movement. At 2 p.m., temperature, 101.2°; pulse, 110; respiration, 20; 20 cc. serum given; 10:30 p.m., temperature, 101°; pulse, 88; respiration, 18. Feb. 16th, 10 a.m., temperature, 100°; pulse, 96; respiration, 20; 10 p.m., temperature, 99°; pulse, 90; respiration, 18; slept well during day. Feb. 17th, at 8 a.m., temperature, 98.8°; pulse, 84; respiration, 18. Temperature did not go higher than 99° during the day. Feb. 18th, temperature, normal. Feb. 19th, patient discharged.

Case 3.—Mrs. M. Delivered of ten-pound boy January 15th. Was called on January 19th, and patient gave history of chill the previous evening; temperature, 101.5°; pulse, 110. On examination, found slight lacerations covered with grayish membrane and slight foul-smelling discharge from uterus. Ordered douches of creolin, 2 per cent., calomel, 3 gr. On the morning of 20th temperature had risen to 104°; pulse, 136; abdomen distended and tender. She had vomited several times during the night; vomitus

consisted of a dark-colored (coffee-ground) fluid; expression, anxious; uterus, large and flabby. Microscope showed streptococcus in pure culture. Administered at once 30 cc. of antistreptococcus serum, and continued douche. On the 21st, at 8 a.m., temperature, 102.5°; pulse, 120; discharge profuse, consisting mostly of pus. Repeated serum in same dose, and gave alcoholic stimulation. Same evening temperature dropped to 101°; pulse, 112. Jan. 22d, 8 a.m., temperature rose to 103°; pulse, 130; serum again repeated, giving 20 cc. at this time. Evening temperature, 103°; pulse, 100. Jan. 23d, 8 a.m., repeated serum with dose of 30 cc.; temperature at this time, 101°; pulse, 110; same evening temperature fell to 99°, and did not rise higher than that but once, which was on the following morning, when it was 100°. Complete recovery followed, and the patient was discharged January 25th.

SCARLET FEVER.

My experience with the serum in the treatment of scarlet fever has been ever more gratifying than in puerperal sepsis. In not a single case that I attended, where the serum was given a fair chance, did death result. In an epidemic of about 50 cases, with a large number of malignant ones, the mortality was *nil* where the serum was used from the beginning. The only cases of death in which the serum was used were seen late in the disease and they were mostly complicated. As will be shown in the following report of cases, the serum was used only in the malignant form and, in most cases, in families where one or more deaths had resulted before this method of treatment was employed. In the milder cases, where the throat symptoms were not so prominent, and in which the temperature was not high, the serum was not used. When we consider the high rate of mortality in the malignant form of this disease, any measure which produces results so definite and beneficial must be looked upon as a great advancement in medical science. I am fully aware that my experience with this serum is much more satisfactory than that of some of my colleagues. However, in the cases where I have used it, the results have been so striking that I shall continue to administer it when indicated, with the firm belief that benefit will follow. It will be noticed from the following cases that the patients thus treated suffered no unpleasant complications or sequelæ, while some of the milder cases were followed by otitis, nephritis, and rheumatism.

CASE 1.—May W., age 5 years; illness commenced on evening of May 8th with chill and vomiting. I was called on the morning of 9th, and found patient with temperature of 104°; pulse, 150; respiration, 30; pain in back and head; strawberry tongue. During the same evening rash appeared on chest, and spread rapidly over entire body; grayish-white patches on tonsils, which were quite badly swollen. Ordered spray, consisting principally of hydrogen peroxide; calomel in broken doses; sponging. On the morning of 10th no material change excepting increased membrane in throat; child very nervous, temperature ranging during day from 101.6°, after sponging, to 104.5°. At 8 a.m., on the 11th, temperature, 103.4°; pulse, 130; respiration, 24. Membrane continued to extend, and on account of having had several cases, complicated by diphtheria, suspected it in this case and gave 3,000 units of antidiphtheritic serum. Repeated serum in the evening, giving 2,000 units at this time. April 12th, no perceptible change in membrane, and decided to examine its character microscopically. This revealed an entire absence of the Klebs-Loeffler bacillus, and an almost pure culture of streptococcus. On evening of 12th gave 30 cc. of antistreptococcus serum, temperature and pulse ranging during the night about the same as during the previous night. April 13th, 8 a.m., temperature, 103.2°; pulse, 126; respiration, 30. At 5 p.m., temperature rose to 105.8°. Serum repeated in same dose at 7 p.m. April 14th, 8 a.m., temperature, 102.3°; pulse, 120; respiration, 28; membrane gradually disappearing; child feeling better, and taking plenty of nourishment. Temperature at 10 p.m. rose to 104.2°; pulse, 140; respiration, 24; 20 cc. of serum given at this time. April 15th, 8 a.m., temperature, 102°; pulse, 130; respiration, 29; membrane greatly reduced. Temperature dropped to 101° at 3 p.m. Serum repeated at 7 a.m., using 20 cc. at this time. April 16th, 8 a.m., temperature, 101.3°; pulse, 128; respiration, 26. Highest temperature during day, 103.1°. Membrane almost entirely disappeared, and throat greatly improved. April 17th, 8 a.m., temperature, 100.4°; pulse, 110; temperature not going higher than 102° during the day. April 18th, highest temperature, 101°; child much improved; temperature dropped to 99° during the day. April 19th, highest temperature during the day, 100°. April 20th and 21st, symptoms continued about the same. April 23d, patient discharged, but still kept in quarantine. Recovery complete without any after effects.

CASE 2.—Ernest K., age 9, second child in family of five. No

absolute records of this case are at hand, as they were destroyed in disinfecting. Previous to this boy's illness, two children, one younger (a girl), and one older (a boy), had died from a malignant form of scarlet fever, and the indications were that this would also be a case of the worst form. On my first visit I found the temperature to be 105°; pulse, 140; very bright scarlet rash, throat much swollen and covered with thick membrane. Microscope showed it to be, as in former case, streptococcic in origin. Practically the same treatment instituted as in former case, with the exception that more serum was required. No after effects followed, and recovery was complete in ten days.

Cases 3 and 4.—Ruby N., age 8 years; John N., age 5 years; two children in same family. I was called in consultation with Dr. W. to see another child in this family, which died the same evening from a very malignant form of this disease. Owing to her moribund condition when I saw her, the serum was not used. The two cases following this one, and which I attended, were of a severe form. I commenced with the serum immediately upon the first symptom of the disease. The records in these cases were also destroyed. The throat symptoms in both did not approach in severity those of the former cases. The temperature after the first injection of serum began to subside, and an uneventful recovery followed with no complications or sequelæ.

Cases 5 and 6.—Two girls in same family, aged 7 and 9 years respectively. One death previous to my visit. These cases showed unmistakable signs of malignant scarlet fever. The rash was very profuse and red; temperature, 106° in one case; 104° in the other. Throat symptoms were severe, with a thick membrane covering tonsils, posterior wall of pharynx and soft palate. Serum administered as in other cases. In twelve hours the temperature in both cases was reduced to 103°. I continued the use of serum for two days, and complete recovery followed, with no sequelæ.

Summary.—To obtain good results from the antistreptococcus serum the following points must be observed: the disease must be due to the streptococcus alone, or it must be decidedly predominant, depending solely upon the microscope as evidence. It must be administered early, or as soon as the origin of the disease is known. The quantity administered must be sufficient to produce a perceptible change in twelve hours, and must be repeated as often as indications demand. For this purpose about 30 cc. should be used for the first dose, and repeated in twelve hours at the furthest, and kept up until benefit is derived, the dose being grad-

ually diminished. This interferes in no way with other treatment, such as stimulation, and the treatment of any particular symptom. The serum used should be known to be of standard strength. As stated before, Parke, Davis & Co. and the Pasteur serum were used in all of the above cases. Paltauf's serum is highly recommended by good authorities as being one of the best, and is favored by Peham, who reports excellent results from its use in puerperal sepsis. No bad effects have been noted in my experience from the use of antistreptococcic serum in the treatment of these diseases. In mixed infections it may be used as an adjunct to other methods, but its success is not so striking.

THE ADVANTAGE OF LIMITING ARTIFICIAL INTERFERENCE IN OBSTETRIC PRACTICE.

By AUGUSTUS P. CLARKE, M.D.,
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THE purpose of this paper, from its title, may seem at first somewhat different from the aims gained through the impression made by the many precepts as usually set forth for guidance in the management of cases coming under the care of the obstetrician. The treatment of the subject, however, when made in a broad and conservative manner and with the insistence that due reliance be placed on certain of the instinctive powers of nature by which the ordeal of parturition can be safely passed through, will really need no apology when it becomes fully realized how numerous have been in labor the serious mishaps which have subsequently been brought to the attention of the gynecologist, or the suffering through which the mother has often had to pass. My own observation in regard to the nature of this class of cases was begun in the earlier years of my practice. I had noticed that there was an inclination on the part of many obstetricians to have resort at the earliest possible moment to the use of forceps for the ostensible purpose of lessening or abridging the hours of labor of the mother. This practice had its inception before the significance of a perineal or a cervical laceration or of other traumatic lesions had become well understood. The variety in style or alteration in the manufacture of forceps or other device to be employed in midwifery, has always been a tempting bait to be caught at by the younger or less experienced members of the profession and so the powers of nature, often slow but safe in their operation, have not infrequently been interrupted at the expense of the incurring of a laceration in the genitalia, of more or less severity, or at that of an immediate infection of the periuterine tissues.

When one takes the trouble to review the history of the invention and employment of the forceps from the time of the elder Chamberlain, of London, to within a comparatively recent period, the fact will appear that the instrument in question has been con-

stantly undergoing changes in form or appearance, many of which have been of the most doubtful utility; such changes in construction seem to have often been put forth in response to the caprice of the designer or to fulfil a desire to have his name connected with some device that might add to his claims as a teacher or as an authority on the obstetric art.

In the discussion of this subject I do not intend to enter into any extended consideration of those cases in which the parturition is preternatural or in which manual assistance may be necessary, or the employment of suitable or appropriate instruments should be used. All experience teaches that the occurrence of such cases often takes place and that the attending physician should be timely prepared to meet every emergency that may arise. The mere fact, however, of his being fully equipped to meet untoward complications is no reason why any device or instrument should be employed or any material manual assistance be offered to hasten delivery, unless the same is clearly indicated for the safety of the mother or for the preservation of the child.

Before proceeding further it might be well to recall the fact that the measurements of the normal female pelvis are practically as follows: the conjugate diameter including the soft parts of the pelvis is three and three-fourths inches, the transverse with soft parts four inches, and the oblique with soft parts four and one-half to five inches. The various measurements of the fetal head are: the biparietal diameter three to three and one-half inches, the occipito-bregmatic or perpendicular diameter three to three and one-half inches, the occipito-frontal four inches, the transverse three to three and one-half inches, the trachelo-bregmatic diameter three and one-half inches, the bitemporal two and one-half, though some writers say three inches and upwards; the occipito-mental five inches. The facial extremity of the ellipse of the fetus from the top of the forehead to the end of the chin, the fronto-mental is three inches, the bimastoid two and one-half inches.

When we compare the several diameters of the normal female pelvis including the soft parts, with the various diameters of the normal fetal head, it becomes apparent that there should be adequate room for the expulsion of a fetus at term; especially so should it become evident when it is considered that there are various degrees of safe compression and of elongation to which some of the diameters here given may frequently be subject, as that of the biparietal, which may be reduced to three inches or less, and

the occipito-mental may be extended from five inches to six, and even seven inches in diameter.

Among the common causes of retardation of labor is that which may be embraced in the term uterine inertia, often in consequence of a somewhat deficient action of the uterus itself or of the abdominal muscles. This may arise from debility of the constitution, either from previous exhaustion of the patient, or from some severe ordeal through which the patient has just passed; or to some mental emotion. So far as the latter factor is concerned, its influence can most often be overcome by endeavoring to exercise firm but gentle control over the patient and to inspire in her that degree of confidence in the advice offered and the skill shown in the management of the case, that is so essential to the attainment of success in every department of the medical art. In those cases in which the patient has previously been much debilitated it is often advisable to insist upon the partaking plentifully of bland but nutritious food at short intervals. Stimulants in varying quantities may also be added as the occasion may require.

Another cause of delayed delivery I have long since noticed has been the too early and free use of anesthetics. I have more than once been called in consultation to an obstetric case in which the patient, it appeared, had been in labor some forty-eight hours or more, and during the greater part of that time had been kept under the influence of ether, and that the amount of ether which had sometimes been used was from three to four pounds, a quantity quite sufficient for the employment at an amphitheatre of a great hospital where scores of surgical operations, more or less important, are to be performed. Now, it may be incidentally remarked that any physician who contemplates indulging his patient in the use of anesthesia, beginning at so early a stage of the parturient processes cannot expect otherwise than to bring unnecessary trouble upon himself and much more upon his confiding patient.

Forceps should not be employed unless there is an absolute necessity for such use, as the resort to it is liable to be attended with more or less hemorrhage, or sepsis, or other local or constitutional disturbance, as these results I have not infrequently seen, even when the greatest precaution against sepsis or injuries had been taken. This has been evidenced by more or less subsequent elevation of temperature; though it may not have been much, still it was sufficient to indicate that there was a lurking danger to which the patient had been exposed. In those cases

in which there has been immediate emptying of the uterus by the untimely resort to forceps, the involution of the uterus will not be as complete or as perfect as it is when the fetus is expelled by the natural forces of the parturient system. Hemorrhage following will be greater and clots are liable to be retained and to give rise to trouble that may require intrauterine douches or irrigation, which practice to be carried out is often fraught with danger to the lying-in woman. The most systematic employment of the Credé method for bringing on uterine contraction will not always prove a sufficient measure against the danger, nor will the timely use of ergot or of any of its various preparations be entirely adequate to such end.

The use of the forceps in all cases requires greater dimensions in the diameters of the maternal pelvis for the safe expulsion of the fetus than when delivery can be effected by the natural processes. Therefore, when there is only, or barely sufficient, room for engagement, rotation and descent of the fetal head, the space occupied by the blades of the forceps must be compensated for by the excessive elongation of the occipito-mental diameter of the fetus or by the undue compression of the biparietal diameter. My attention was, by Dr. Wahl,[1] of Dresden, Germany, particularly called, some years since, to the fact that the space occupied by the forceps is always to be considered as being of material consequence in any case in which it is proposed that it is to be used. Though Dr. Wahl's paper had for its object other considerations to present than those which I wish to bring out, yet a careful perusal of his most excellent contribution reveals the truth that there are many dangers incident to the use of such instrument. He says that of all obstetrical operations the one in which the forceps is to be employed is attended with the most hemorrhage. In the milder class of cases in which the forceps is used (leichten Zange) there is liable to occur, he says, laceration of the vagina, of the cervix, and of other parts that may lead to dangerous hemorrhage, if not to the death of the mother. Before using the forceps, the medical attendant should, as already intimated, be prepared to resort, if necessary, to symphysiotomy or to Cesarean section. In the operation of version less space for the most part is necessary than in that in which the forceps may

[1]See also the article, Ueber die entblindungen mit der Zange an der Königl. Frauenklinik in Dresden in den Jahren 1889 bis 1 Januar, 1894. von Dr. Wahl, zwietem Assistenten. (Sonderabdruck aus *Archiv für Gynäkol.*, Bd. L, Heft 2.)

be used. In those cases in which the fetus is dead and cannot be extruded whole, craniotomy can be had recourse to and the space in which the operation is done can be reduced to the narrowest limits.

Before resorting to radical measures for relief, the condition of the patient and of the fetus should be most carefully considered, and not always the number of hours of labor that have been passed. Some women, though not seemingly very robust, have endured more or less pain attendant on labor for two, three, or more days before the birth of the child and still have recovered without the intervention of the slightest untoward symptoms, while others having a malposition of the fetus or some material departure from the normal trend of parturition have collapsed or perished quickly soon after the supervision of parturient processes. There have been many instances of this class of cases to which I have, during my professional course, been called. It is not the tenseness of the soft parts nor the mere resistance to be overcome that is most liable to affect seriously the mother; it rather depends upon the nature of the obstacle. This must be accidental in character in order for it, for the most part, to be likely to transmit unfavorable impressions to the parturient center of the spinal cord, that portion of the medulla spinalis opposite to the first and second lumbar vertebræ.

Another point in this connection I will mention, which I consider to be of much importance. It is the substitution in large measure of external for internal vaginal examination. In almost every case a quite perfect knowledge or understanding can be obtained in regard to the position and presentation of the fetus by external inspection and palpation, without incurring the necessity of making frequent internal examinations. When it becomes essential or when I feel that the results of the external should be verified by the vaginal method this can be done after carefully sterilizing my own hands, and also the vulval and vaginal parts of the patient, by inserting the fingers gently between the lips or clefts of the soft parts so as to have the hand come as little as possible in contact with the tissues of the patient. This can be greatly aided by making free use of sterilized gauze sponges; one can be placed on each side of the labia so as to keep the parts everted during the examination.

In no case do I use an intrauterine douche or irrigation after the expulsion of the child unless there is a positive indication presented for such employment, for the secretions and blood at this

time are all practically aseptic and, therefore, any attempt to modify what is cleanly will be likely to do more harm than good. Of course, if one does not feel sure of his ground, or has reason to believe that he has not been fully cautious in carrying out the details of his work, he must do the next best thing that may occur to him to correct the error or to obviate the danger which he may think there may be of sepsis.

Without going further into detail in regard to the management of this class of cases, I will take occasion to mention a portion of the results recorded in my notes and lists of some forty-two cases in which the most favorable outcome had been presented. This record comprises cases of primiparæ and multiparæ. Eighteen were cases of primiparæ. The labor of twelve cases of these primiparæ extended over the period of twenty hours, four cases over twenty-three hours, one case eighteen hours, one case over fifteen hours. In no one of these eighteen cases was there during convalescence any appreciable elevation of temperature nor was there any septic or other untoward symptoms, and no laceration of the perineum or of other structure. The recovery in all cases was normal. In one case, however, in which the age of the patient was forty years, there was no secretion of milk in either mamma. The child, a male, weighing ten and one-half pounds at birth, was sustained on well-sterilized cow's milk. The ages of these twelve mothers (primiparæ) were one 18 years, one 19 years, two 23 years, two 24 years, one 29 years, three 34 years, one 40 years, and one had attained to the age of 44 years. The weights of the various children of these twelve mothers were as follows: of the one who was 18 years old the weight of the child, who was a male, was nine pounds; of the one who was 19 years of age the weight of the child, who was a male, was eight and one-half pounds; of the two mothers of 23 years one had a child, a female, the weight being seven pounds, and the other had a child, a male, the weight being ten pounds; of the two mothers of the age of 24 years the weight of one child, a female, was nine pounds, and of the other the weight of the child, a male, was six and three-fourths pounds; of the mother of 29 years the weight of the child, a male, was six and one-half pounds; of the three mothers of the age of 34 years the weight of two children, who were females, was seven and one-half pounds each and the other was eight pounds; the mother of the age of 40 years had a child, a male, whose weight was ten and one-half pounds, and the mother of the age of 44 years had a child, a male, weighing nine pounds.

The other six cases of primiparæ had a period of duration of labor of less than twenty-four hours: one mother was aged 18 years, having a child, a male, weighing seven and one-half pounds; two mothers were aged 19 and 21 years respectively, the weight of one child, a male, being eight pounds, the other's child weighing seven pounds. The ages of the other three primiparæ were 24, 27, and 30 years respectively. The one aged 24 had a male whose weight was eight and one-quarter pounds; the one aged 27 had also a male weighing seven pounds; the one aged 30 years had a female whose weight was six and three-fourths pounds.

It might be interesting in this connection to compare the measurements of the several diameters of the pelvis of the various mothers with the measurements of those of the fetal heads. Suffice it to say, however, that the diameter of the antero-posterior in almost all approached to nearly the normal standard or with the soft parts varying from three and three-eighths to three and seven-eighths inches. It is the measurement of the antero-posterior or sacro-pubic that should be most carefully considered in the management of any obstetric case, for if that diameter approaches nearly to the normal standard, one can, cæteris paribus, often correctly conclude that the other diameters of the pelvis are regular. In one case mentioned in which the patient was 18 years old, the child was a male, weighing nine pounds, the sacro-pubic diameter of the mother's pelvis scarcely exceeded three and three-eighths inches. This patient was one of the class whose labor was over twenty hours. There was slow dilatation of the os uteri. External examination, however, revealed that the child was not in an abnormal position. As the descent was made the nape of the neck appeared behind the right acetabulum and the bregma to the left sacro-iliac synchondrosis. Engagement at the brim at first was slow and almost imperceptible; rotation and descent were also slow and these stages appeared to be due to the gradual manner in which the biparietal diameter was being compressed and the occipito-mental diameter was undergoing the necessary process of elongation for safe rotation and extrusion. The child, after it was born, appeared to be of high vitality and it continued to be well and active. Careful measurements of its head and the degree of overlapping of the bones and the compression it had sustained showed that these favorable features found must have reached their extreme limits for safety and that any further compression which might have been done by forceps to hasten matters would have been danger-

ous if not fatal to the life of the child. Of the other cases, which were twenty-four in number and which were multiparæ and which had favorable outcome both as regards the mother and the child, much could be said, though an extended consideration at this time into detail will have to be omitted.

In one case, however, I might say that the age of the patient was 37 years. Her history was that she had three times previously been delivered, twice by forceps and once by version. The children died soon after being born. The sacro-pubic diameter in this case with the soft parts was three and three-eighths inches. During the last six months I kept the patient on a much restricted diet, requiring her to take considerable daily exercise in the open air so as to improve the general tone of her system and to develop strongly her muscular powers. The duration of the labor was twenty-seven hours from the onset. There were old tears of the cervix and of the perineum, but these had given her but little trouble. Engagement at the pelvic brim was slow, so also were rotation and descent of the head. The delay was due undoubtedly to the large size of the child and especially to that of the head. Though there was no caput succedaneum, there was nevertheless a most marked elongation of the occipto-mental diameter, which measured fully seven and one-half inches, while the biparietal diameter from the compression which it had undergone scarcely measured at the time two and two-thirds inches. The child soon became active and got on well. Its weight was ten and one-fourth pounds, not including any clothing. The patient was seven and three-fourths hours longer in this labor than in either of the other three, in each of which the delivery was effected artificially, and in all three of which the child did not survive.

INFANTILE INTESTINAL DIVERTICULA.

By J. W. HYDE, M.D.,
BROOKLYN.

The number of cases of diverticulum of the intestine which have been reported in medical literature is remarkably few, and leads to the belief in its rarity. For this reason, individual instances of its occurrence should be placed on record. Meckel, the great German anatomist, first demonstrated the diverticulum ilei, and from him it takes its name. Strasser has reported one case of this rare condition, and gives a table of sixty-three other cases collected from the literature.

These diverticula may take origin in almost any portion of the ileum, one being, perhaps, fifty inches remote from that of another case; but the majority of them appear to take origin at or about the junction of the jejunum and ileum. Here a pouch is formed in the vitelline duct, a remnant of embryonic structure. In one instance, the diverticulum ends in a blind pouch, and it may be attached to some portion of the interior abdominal wall, preferably at or near the umbilicus. In other instances it finds a fistulous exit above the umbilicus; then, again, others find a fistulous exit one or more inches below the umbilicus. But Hemmeter says in his treatise on diseases of the intestines: "In rare instances the diverticulum establishes open communication between the ileum and the external abdominal surface, at the umbilicus, through which the intestinal contents may escape." I report such a case.

The child was born of Swedish parents, both of whom were healthy; weight, nine pounds; under the care of a midwife. The unusual size and color of the cord at its umbilical junction led the midwife to tie it four inches distant. At the expiration of five days partial separation of the cord exposed a bleeding mass, and the parents, becoming alarmed, decided to summon other aid. The child appeared to be large and robust. The cord had separated sufficiently so that the retained meconium and blood escaped freely, after which the infant was more restful. Complete separa-

tion of the cord took place on the tenth day after birth. Then the appearance was that of a tumor, about the size of a large strawberry, red, granular and bleeding, with attachment by the apex. This tumor was quite firm, but compressible, and bled whenever touched; moreover, the contents of the bowels were forced through this umbilical opening whenever the child cried or strained. This large granular mass has been denominated by one or two writers as a hernia of the mucosa or submucosa through the muscularis of the intestine, which seems to be a very just and probable explanation of it.

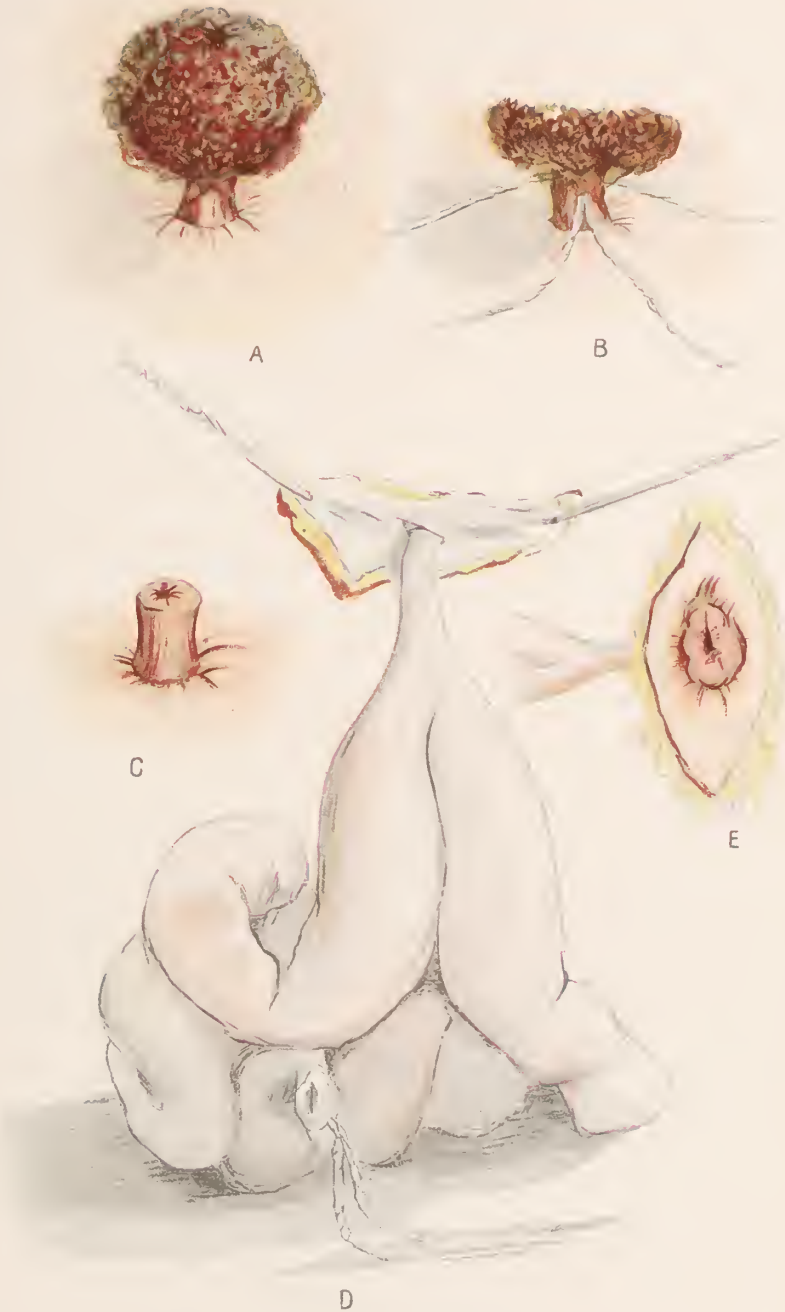
After using local astringent applications for a few days, it became evident that the mass must be removed. The great restlessness of the child prior to the separation of the cord, and its evident relief after the discharges were free and unrestrained, caused some hesitation about ligating the mass. However, it was attempted by passing a double ligature through the base and tying half on each side. Hemorrhage ceased immediately. The tumor sloughed off in a few days, and in its place protruded a firm, whitish stem, one-half inch in length, the distal extremity of the duct, with umbilical tissues around it, giving it a clean surface; but the intestinal discharges continued through the umbilical opening as before. The parents objected to further operative interference until the child was older. However, the child died suddenly, when about four months old, of cholera infantum, and our plans were frustrated. How far delay was detrimental to the child's existence cannot be known, but we do know that abnormalities of the intestines threaten troubles of one kind or another, obstructive or inflammatory, sooner or later. Fitz (*Am. Journal Med. Sci.*, 1884, page 30) has called attention to the rôle played by this abnormality in the causation of obstruction, cyst formation and intestinal duplication.

Keating (*Cyclop. Dis. Children*) says, in the chapter on strangulations and incarcerations, the mechanism is pictured by which the Meckel diverticula may give rise to those forms of obstruction.

Dr. James E. Moore, of Minneapolis, has reported in the *New*

EXPLANATION OF PLATE.

A.—Appearance before operation.
B.—Method of removal.
C.—Appearance after removal.
D.—Dissection after death.
E.—Shrivelled appearance after death of the firm protruding portion.



HYDE-INTESTINAL DIVERTICULUM.

York Med. Journal, April 25, 1896, a case of strangulated umbilical hernia in a male infant seven months old. The hernial sac was composed of what seemed to be the remains of the umbilical cord, and the gut contained in it was a Meckel's diverticulum, about two and one-half inches long, with an opening in the extremity. Result of operation was an uninterrupted recovery.

Dr. George Tully Vaughn, U. S. Marine Hospital Service, reported a very interesting case (*N. Y. Medical Journal,* June, 1896) of a sailor in the Marine Hospital who died of enteric fever. At the necropsy the colon was found greatly distended with gas; ulcerated Peyers patches and solitary glands were found in the ileum and cecum; the mesenteric glands and spleen

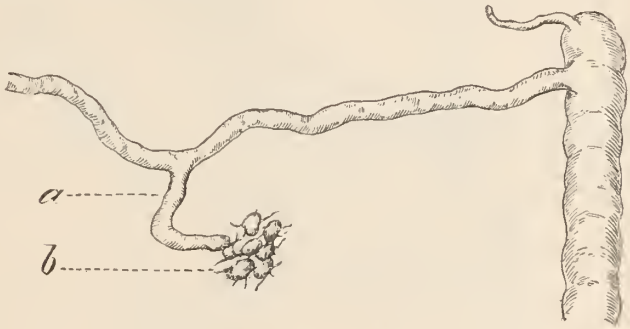


Fig. 1.—*a.* Meckel's diverticulum. *b.* Mass of enlarged mesenteric glands.

were enlarged. One hundred and twenty-five centimeters (fifty inches) from the cecum a diverticulum was found projecting backward from the ilium and ending in a blind extremity, which was attached by means of the mesentery to a mass of enlarged mesenteric glands. The diverticulum was slightly smaller in caliber than the ileum at its junction with that intestine. It extended from the ileum at right angles for five centimeters, at which point it was bent at right angles on itself and extended two and one-half centimeters further; seven and one-half centimeters in all, as per diagram No. 1.

The interior of the diverticulum had apparently the same structures as the intestine to which it was attached. It contained two small swollen Peyers patches, and several enlarged and ulcerated solitary glands.

Dr. I. S. Stone (*Am. Jour. Obstetrics,* August, 1903) reported a case of obstruction of the bowels, due to torsion of the mesentery

and the presence of a Meckel's diverticulum. The case was that of a woman, 30 years old, who had suffered from repeated attacks of obstruction of the bowels since four years of age. Operation was successful. See diagram No. 2.

Fig. 2.—Meckel's diverticulum.

I have drawn attention to these cases of diverticula, because they have been found unexpectedly and unsought as complications in other intestinal cases. The very few cases of diverticula recorded, and the acknowledged danger to the patient's life when such a condition is present, leads us to the belief that many of the cases of so-called "inflammation of the bowels," "intussusception," "hernias," and other fatal bowel troubles have been, perhaps, only

the sequel of unrecognized abnormalities of the intestines. The abnormalities may be latent for years, but they only await the fateful moment when right conditions invite their destructive work.

To conclude: 1. We find that the diverticulum ilei is more frequently found as a blind pouch attached or unattached to the interior abdominal wall or to the mesentery, but that it does, in rare cases, establish open communication between the ileum and the external abdominal surface, at the umbilicus, through which the intestinal contents may escape.

2. That it occurs more frequently in males.

3. That the accoucheur should always examine the cord carefully before and after separation, and tie far enough distant to not include any portion of the intestine which, perchance, might be protruding.

4. When the fistulous exit indicates the presence of a diverticulum, the safest way of treatment is the radical operation, and at as early a date as conditions will permit.

CYSTADENOMA OF THE PANCREAS; REMOVED BY ABDOMINAL SECTION.

By L. H. DUNNING, M.D.,
INDIANAPOLIS.

This neoplasm is sufficiently uncommon to lend interest to single reports concerning it. The one I now present relates to a patient who was referred to me by Dr. Ball of Waveland, Ind., Sept. 2, 1903.

The patient, Mrs. S., aged 25 years, gave the following history: Two years and a half ago she was confined for the second time in a normal labor. Upon sitting up the first time, she noticed a "lump" in the left side, just beneath the short ribs. This lump has persisted ever since, sometimes seeming a little larger and sometimes a little smaller. She had suffered occasional attacks of severe pain, which seemed to be located in the region of the tumor. She says that during the attacks of pain she was unable to outline the tumor, but that a few hours after the pain disappeared the tumor again became prominent. The attacks of pain were so severe as to require the administration of morphine for their relief.

I saw the patient some months ago, and made a diagnosis of hydronephrosis. Upon examination, September 2d, the tumor was found to occupy, when at rest, a position just below the stomach, with the major part of it lying to the left of the median line. The lower border of the tumor lay slightly below the umbilicus and to its left. The tumor was quite movable and could, by gentle pressure, be made to bulge into the space between the crest of the ilium and short ribs upon the left side. It could be pushed to the right wholly or quite beyond the median line. With the patient in the erect posture, it descended so that the lower border was two or three inches below the umbilicus. The tumor was elastic, and fluctuation could be elicited. Movements of the tumor caused some little pain. When at rest there was a tympanitic note over its lower third, and when it was pressed into the flank the tympany extended over the tumor to near its middle.

The patient was positive that it varied in size, yet was sure there was no variation in the amount of urine voided, coincident with the variation in size of the tumor.

After painstaking examination of the patient, I was still of the opinion we had to deal with an intermittent hydronephrosis in a case of movable kidney, yet there was some doubt in my mind as to the absolute correctness of my opinion. This doubt led me to do an unwise thing, namely, to attempt to draw off a portion of the fluid with a hypodermic syringe. The tumor was gently pushed into the left flank, and the syringe point thrust through the overlying structure into the cavity of the tumor.

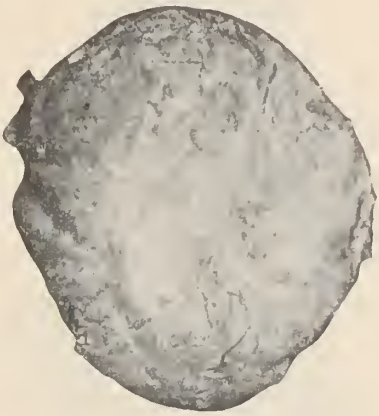


Fig. 1.—Cystadenoma. Front of tumor.

No fluid was obtained. The patient was sent to the hospital, and September 4, 1903, was operated upon. The ordinary vertical incision was made between the twelfth rib and the crest of the ilium, as in cases of nephrectomy. After incising the lumbar fascia, the kidney was found in normal position and the lower and outer border of the tumor could, when gentle pressure was made upon it in front, be easily outlined in front of and to the right of the kidney.

The posterior incision was closed, the patient turned on her back, and an incision made in the left border of the left rectus muscle four inches from the costal arch downward. As soon as the peritoneum was opened there was an escape of a small amount of clear fluid of mucilaginous consistency. The tumor, as large as an adult's head, was delivered with some difficulty for, while it

had a considerable range of motion laterally, backward and upward, I found it difficult to lift it out of the incision. The growth occupied the space between the stomach and transverse colon, the latter distinctly overriding its lower border. When the tumor was pushed backward and upward, the stomach overlapped its upper border. A portion—the anterior surface—had a yellowish-white appearance. The upper and middle portion of the anterior aspect of the tumor was covered by omentum (gastrocolic), and

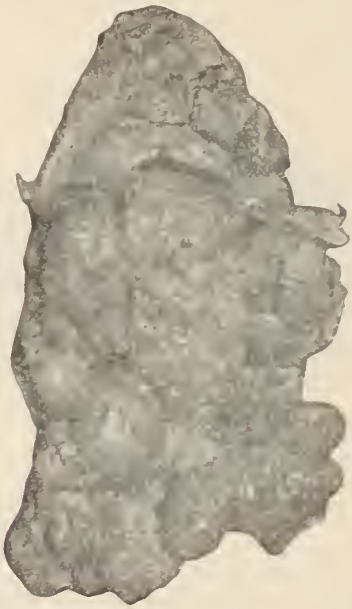


Fig. 2.—Cystadenoma. Posterior appearance of tumor.

the lower anterior aspect by the colon and greater omentum. The gastrocolic omentum spread out over a greater portion of the tumor.

I was soon convinced I had to deal with a cyst of the pancreas and, furthermore, felt confident I could enucleate it. To our satisfaction, this belief was fully demonstrated. I found the gastrocolic omentum pretty well fused with a small portion of the tumor upon its anterior surface in its centre, as a ring or circle one inch in diameter. A little away from this circle the covering could be picked up with the forceps, so the incision through the structure overlying the tumor began at this point and was

carried completely around the circle, the opening being carefully enlarged upward and downward in a vertical direction, and with blunt dissection the omentum and posterior layer of mesocolon were peeled off the tumor. We finally came to the point of firm attachment of the tumor to the pancreas near its left extremity. By exercising considerable care, the tumor was stripped off the pancreas without tearing into the glandular structure of the organ.

Fig. 3—Shows (*a*) main cyst wall of fibrous tissue and (*b*) secondary smaller cysts filled with mucoid material.

Very little bleeding resulted from the enucleation. Three or four arteries were tied with fine catgut. The cavity left by the removal of the tumor was closed by a series of fine catgut stitches.

On enucleating the tumor the source of the fluid that escaped through the incision as we opened the abdomen was found, and also the reason we failed to obtain fluid by aspiration. The fluid was too thick to enter the syringe point, and the opening made by the puncture of a fine hypodermic needle had not closed, but

had enlarged and had allowed a gradual escape of a small amount of fluid into the peritoneal cavity. Some of this fluid was found in the pelvic cavity, and was sponged out by carrying the gauze sponge down into the pelvis. On account of this leakage of the fluid, which I thought to be from a hydatid cyst, the abdomen was thoroughly irrigated with a normal salt solution and the pelvis was again mopped and dried with sponges.

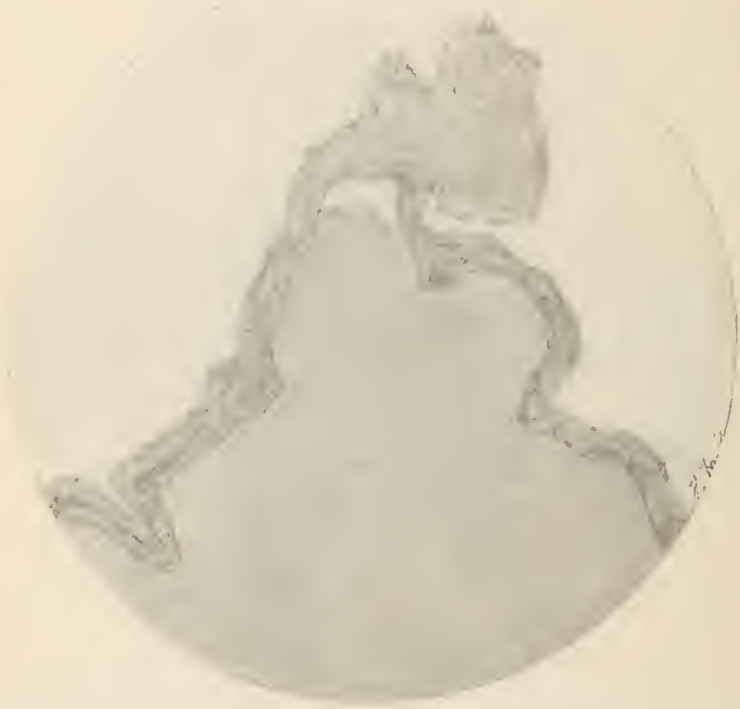


Fig. 4.—Portion of small secondary cyst filled with granular matter.

The tumor was examined by Dr. Wynn, whose statement is herewith given, and also photographs of the tumor, and drawings from slides showing the cyst walls and acini.

Dr. Wynn's Pathological Report.—"The tumor submitted for examination is smooth, round, and about the size of a child's head at birth. The largest diameter is about six inches. There is a dense fibrous tissue capsule, varying from one to four millimeters in thickness. From the inner surface of the main cyst wall numerous cysts, forty or fifty in number, project into and fill the

main cyst cavity. These vary in size from a small pea to a hen's egg. The cysts were filled with a slightly turbid, tenacious mucoid material. Under the microscope this was found to contain an abundance of grandular débris, epithelial cells, and some calcium oxylate crystals. A portion of a thin cyst wall was spread out upon a glass slide, and seen to be covered, more or less, with epithelium undergoing degeneration. After hardening a portion of the main cyst wall, sections of the same were made and studied

Fig. 5.—Showing (*a*) fibrous wall, (*b*) well-formed cysts and (*c*) beginning cystic change in acini.

in the usual manner. The microscope reveals at several points near the main cyst wall somewhat regularly formed acini lined by epithelium, showing varying degrees of degeneration and beginning cyst formation. While this adenomatous tissue is not typical of pancreatic tissue, it might pass for such. My first impression in the examination of this tumor was that it was an echinococcus cyst. I searched in vain for the hooklets. The further microscopic study, as detailed above and illustrated by the

accompanying drawings, convinces me that the tumor is an adenocystoma of the pancreas."

Several interesting questions grow out of this case. What must be the explanation of the seeming disappearance of the tumor? This question is considered worthy of note because the statement of the patient that the tumor "seemed to go away" when she suffered pain influenced me somewhat in making my diagnosis. I

Fig. 6.—High amplification showing (*a*) glandlike acini lined by epithelial cells in (*b*) connective tissue stroma.

found, however, that by placing the patient upon her back with the head low I could cause all visible signs of the tumor to disappear, and found it difficult, even with deep palpation, to trace its outline. I have recently had a similar experience in a case of movable liver. In this latter case, when the patient sat up, a tumor in the epigastric region could be grasped between the hands. Dulness on percussion extended from the xyphoid cartilage to the umbilicus. When the patient lay upon her back with her

head low, the mass disappeared and the areas of dulness and tympany were not markedly abnormal. Upon exploratory incision a markedly movable liver was found, which could be easily pushed down into the position occupied by the mass when the patient was in an erect position.

What relation did this tumor bear to the pancreas? It is called a pancreatic cyst, because it occupied the position usually occupied

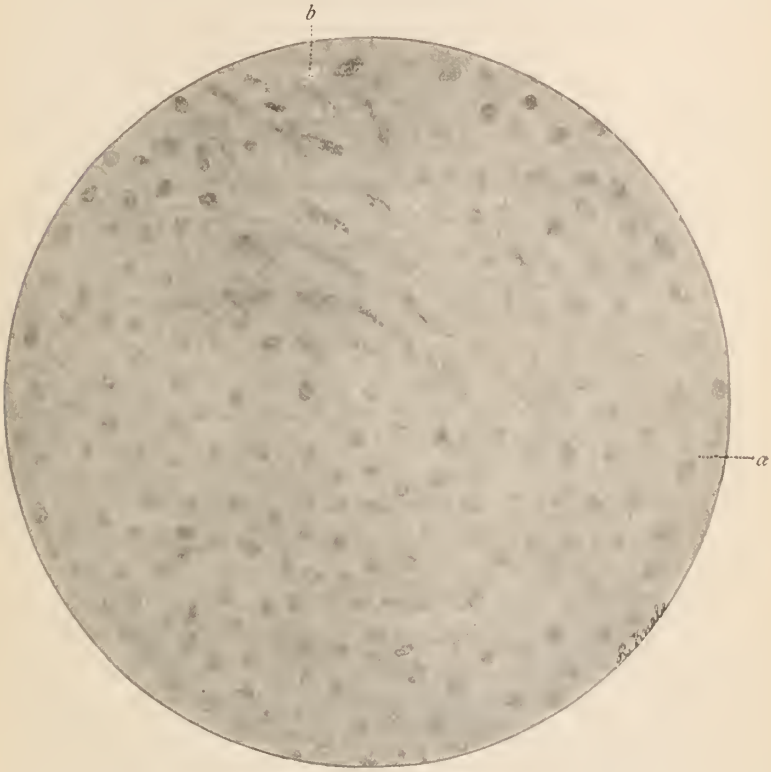


Fig. 7.—Portion of a very thin cyst wall spread out flat and showing (*a*) large polygonal epithelial cells and (*b*) connective tissue wall from which the epithelium is denuded.

by such a cyst and was attached to the pancreas. The fluid was not tested to determine if it possessed any lipolitic properties. The pathologist, in his report, says: "While this adenomatous tissue is not typical of pancreatic tissue, it might pass for such." We have failed to demonstrate the presence of the two most positive signs of the pancreatic origin. It has, however, been the custom to classify cysts occupying a similar position and attached to the

pancreas as pancreatic cysts. Our case bears a close resemblance to those of Bozemaus, Ranshoff, Vankreef, Martin, and the one pictured in Robson and Moynihan's book on "Diseases of the Pancreas," page 223. Robson and Moynihan state (page 202) that "unless a careful post-mortem examination is made, the origin of the tumor of the pancreas cannot be proved, for if the growth begins in the suprarenal capsule in adhesion to the pancreas, it is probably formed very early on the left side, and at the operation a portion of the pancreas may have to be removed." In my case the suprarenal capsule origin of the tumor may be excluded, I think, because when at rest it was two or three inches removed from the site of the suprarenal gland and kidney. Neither could the case described have been a cyst of the omentum, for it lay entirely behind the omentum. If it be true that there are sometimes remnants of the Wolffian body in the posterior layer of the mesocolon, there may be here an explanation of the origin of some of the tumors in this region. This growth had the gross appearances of many cases of ovarian cystoma I have extirpated.

There is a lesson in the mistake made in puncturing the tumor for diagnostic purposes. All late writers caution aganst this procedure, but it is surprising how frequently the error is committed. Disaster might have come to my patient had this proved to be a case of hydatids or a proliferating cyst of the pancreas. Certainly, an exploratory incision is less dangerous, and should be preferred.

In my patient, pain was the prominent symptom. It came usually after supper and was intense, requiring for its relief the administration of large doses of morphine. Freidrich has given the name of celiac neuralgia to such attacks of pain attending pancreatic cysts. Vomiting, which is so common a symptom, was not present in my case. The urine was examined upon the day of the operation, and showed an absence of sugar. The stools were not examined. There was no jaundice, and the patient's general health was not greatly impaired, which fact may be accounted for in the absence of the involvement of much pancreatic tissue.

This case well illustrates the advisability of enucleating cysts of the pancreas when it is possible so to do. It is not at all probable that puncture and drainage would have resulted in a cure, for the reason that there were numerous cysts, and further cystic proliferation was in active process, as is shown in the accompanying drawings.

REMOVAL OF A DERMOID CYST AND A DECOMPOSING FETUS FROM THE UTERUS BY ABDOMINAL SECTION; WITH REMARKS.

By J. A. SUTCLIFFE, M.D.,
INDIANAPOLIS.

In April, 1902, Dr. T. W. Longfellow, of Windfall, Ind., referred to me a married lady, the wife of a farmer, on account of an abdominal enlargement. She was thirty-seven years old, and the mother of seven living children: six boys and one girl, the youngest being two years of age. She was stoutly built, weighing 170 pounds.

This patient had been feeling badly and losing flesh and strength for three months previous to the above date. She experienced considerable pain in the abdomen and pelvis, especially on the left side. There had been no chills, nor appreciable elevation of temperature. Menstruation had been regular every month. Morning sickness and the ordinary changes in the breasts characteristic of pregnancy were absent. Over the surface of the abdomen the enlargement was more apparent on the left side, and to the sense of touch was soft, with circumscribed fluctuation. Digital examination per vaginam detected a smooth, solid mass, of rounded contour, in the upper part of the left side of the pelvis and lower part of the abdomen, the size of an average orange. The uterine cavity was elongated to the extent of several inches. The diagnosis made was that of a dermoid or fibroid tumor, associated with either pregnancy or some form of cystic growth.

To the patient, the idea of pregnancy was out of the question. She declared that, with her extended experience, if there were any symptoms in this world with which she was familiar, they were those of pregnancy, and she was positive that such a condition did not exist. She was operated upon at the Protestant Deaconess's Hospital, April 30, 1902. The abdomen was opened and a dermoid tumor removed, which contained a large mass of hair, with some pieces of bone.

The uterus was enlarged, but did not present the rounded, tense outline as ordinarily seen in pregnancy. It was more like a partially distended fluctuating sac, with the anterior and left lateral walls exceedingly thin; so much so, indeed, that it would seem to have very little, if any, contractile power. The conditions presented were so peculiar and out of the ordinary that it was a question as to the nature of the contents. With a fine hypodermic needle a few drops of dark fluid were withdrawn, which was construed as evidence that if the fluid was amniotic the fetus was not alive.

The viscera were protected with an abundance of gauze, and hemorrhage controlled by constricting the cervix. An incision was made into the uterus sufficiently large to admit the index finger, which detected a four-months' fetus, partially decomposed. The incision was enlarged and the fetus and placenta were carefully removed through the wound. The placenta was attached to the posterior wall. The cervix was dilated from below with a dilator, and the cavity irrigated from above downward with a weak bichloride solution. The uterine wound was sutured, uniting the serosa and muscularis but avoiding the mucosa, after which the abdomen was closed. The patient's pulse never arose above a hundred, nor the temperature above a hundred and one. She made a rapid and perfect recovery, and has remained well up to the present time.

While the literature upon this peculiar class of cases is somewhat limited, it would seem that such a condition might result from the lodgment of the ovum in the tube, near the uterine cornu. As the ovum increases in size it grows in the direction of least resistance, and gradually changes its position from extrauterine to intrauterine. During this process the uterine wall about the cornu becomes enlarged, softened and thinned, while the remaining portion of the organ takes but little part in these changes. A somewhat similar condition may be brought about when, from some lesion, fecundation takes place in the uterine wall,—the so-called intermural or intestitial pregnancy.

While the results of the above case were all that could be desired, conservatism and a desire to accomplish the best results with the least risk prompts the question as to whether or not the patient would have been so fortunate had we been content, after removing the tumor, to simply rupture the membranes and trust to the uterus to expel its contents. The conditions to be met by

treatment are very different with reference to whether the fetus is dead or alive.

Some of the arguments in favor of the course that was pursued are that the uterus was promptly and completely emptied, while on the other hand, the result would have been indefinitely postponed. The hemorrhage was slight and under the control of the operator, while otherwise, the loss of blood might have been persistent, and manual compression for its arrest impossible over a wound in the abdomen.

The danger of septic infection ought to be less when dead tissue is promptly removed than when it is allowed to remain indefinitely in close proximity to an abdominal wound. Where the uterine wall is so attenuated, as in the present case, rupture is possible during the natural efforts at expulsion of its contents.

SUTURE AND LIGATURE MATERIAL.

By CHARLES ELLSWORTH CONGDON, M.D.,
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In attempting to discuss this subject we at once encounter an obstacle in the paucity of our nomenclature. Both suturing and ligation should be included under a common general term, since both involve the primary conception of an artificial retentive device, thread-like in form, and destined to remain in place for a considerable period, until the vital process of cellular activity has secured at least the beginning of permanent union.

Suturing implies the retention of tissues in appreciable sheets or masses, with the object of securing union by adhesion, or at least of diminishing, so far as practicable, the space to be bridged in by granulation tissue. In suturing there is also anticipation of the necrosis of very minute masses of tissue. Ligation, on the other hand, implies the occlusion of a single tubular structure, such as a vessel or duct, or of a mass of similar minute structures included in a pedicle. Excepting comparatively rare instances in which a vessel or duct, especially the spermatic duct, is occluded without severance, ligation differs from suturing in implying the presence of an appreciable mass of tissue destined to undergo necrosis, preferably without sepsis, but with absorption of the tissues distal to the ligature. Generally speaking, ligation is also performed in deeply-seated structures, whereas suturing implies the presence of a free surface, either upon the exterior of the body or internally, as in the case of the alimentary canal, a duct, vessel, and similar structures.

The process of union, assisted by either ligation or suturing, is essentially a function of mesoblastic, leucocytic cellular activity, epithelium and endothelium probably never being restored to an ideal state of integrity, although the gap bridged in by connective tissue may be minute, and there may even be a superficial covering of the connective tissue bridge by epithelium. A visible scar of exterior surfaces is inevitable, but in the case of the alimentary canal and of tubes lined with endothelium no visible defect may remain.

The typic operation of suturing involves a succession of penetrating stitches, while the typic ligature surrounds a column of tissue with a single loop secured by a knot. Yet a small wound requiring only a single suture conforms closely to the concept of ligation, while, on the other hand, the Tate ligature, or *a fortiori,* the atypic ligature of a broad pedicle, by a series of retentive loops, trespasses on the definition of suture. Thus, it is impossible to distinguish sharply between suturing and ligation, and no attempt will be made to do so in the further discussion of this subject.

Broadly speaking, any thread-like substance may be used for either suturing or ligation. It would require too much space to discuss in detail the limitations and preferences which exclude the vast majority of fibers from use for either purpose, or the well-known, though not always unanimously accepted, reasons for choosing certain materials for use in one operation, and certain others when circumstances are different. Especially, as the choice depends largely upon individual physical characteristics of various fibers, it would be a waste of time to attempt to lay down general laws for selection, in the present unsettled state of surgical opinion. We may, however, be influenced by the fact that usually, though by no means invariably, the suture is under observation and destined to voluntary removal when its purpose has been fulfilled, while the ideal ligature is one that may be left deep in the body and its subsequent fate intrusted to vital processes.

Undoubtedly, the first use of a thread-like device to secure occlusion was that of a hair, sinew, or vegetable fiber to ligate the umbilical cord.

Such practice has been observed more or less generally in various primitive people, and must long antedate the dawn of history. The earliest authenticated use of the umbilical ligature is by Susrutus, B. C. 1500. Owing to the natural safeguards against hemorrhage and infection, there has been comparatively little incentive to improvement in this regard, until the introduction of aseptic measures into obstetrics, within our own recollection. Indeed, it is altogether probable that beyond the availability of different forms of string, the majority of modern ligations of the umbilical cord are not a step in advance of the practice of many prehistoric savages.

Barring the tourniquet, which is merely a temporary ligature of an entire limb, which may even have antedated the ligature of the umbilical cord, the next step, historically speaking, is the application of the ligature to severed vessels, dating at least from the

time of Hippocrates, B. C. 460, and also mentioned by Celsus, B. C. 25. It is somewhat doubtful whether either of these writers, who were essentially physicians and not surgeons, actually practised ligation, but if not, their references to it are even more significant, as indicating that it was an accepted item of contemporary practice. Owing to ignorance of the principles of antisepsis, as well as to purely mechanical imperfections, the danger of secondary hemorrhage has militated against the popularity of the ligature, and throughout the dark and the middle ages it was almost entirely supplanted by hemostasis by external pressure and styptics, of which favorite means were the cautery and immersion in boiling oil.

The reintroduction of the vascular ligature is due to Ambroise Paré (1517-1590), who was its untiring champion. Yet opposition both to the ligature and to the suture has persisted to the present day, as is attested not only in medical literature directly devoted to polemic discussion, but by numerous records of invention of clamps, angiotribes, cauteries, lacing devices, serres fines, and various other substitutes for thread-like retentive devices.

To one of modern anatomic and physiologic training, it is almost incomprehensible that Paré and his predecessors, men of ample intelligence and wide experience, could have used the vascular ligature to prevent hemorrhage without having discovered that arteries were not, as the name implies, air tubes, and without having conceived of the circulation of the blood. It is almost beyond belief that they did not connect in some vague way the beating of the heart and the jetting of arterial blood, and distinguish between arterial and venous hemorrhage. Yet the actual discovery of the circulation of the blood dates only from the researches of Harvey in 1628.

The next step in the extension of the ligature, beyond the function of direct hemostasis, was its application to the treatment of aneurysms, in which we see illustrated both the therapeutic effort directed toward the aneurysm and remote prophylaxis of hemorrhage. Here, too, we find the first example of ligation without severance. The history of the ligature treatment of aneurysm is scarcely germane to our present subject, as the choice of material and its preparation conforms to the general principles for ligation for other purposes.

The use of the suture, excepting for clean external wounds of short length, or of longer ones in very vascular and rapidly heal-

ing parts, such as the scalp, was prevented by the almost inevitable occurrence of local sepsis, whose occasional occurrence to-day is a recognized indication for the removal of sutures, except as they may be retained merely to abridge the chasm between granulating surfaces. Thus, until recently, suturing has had mainly a cosmetic function, its application on a large scale to deep and penetrating wounds being subsequent to aseptic surgical development.

So, too, until this development has been achieved, the internal suture of the alimentary canal, of vessels, ducts and the like, accidentally wounded or torn, and not situated comparatively superficially, as in amputation stumps, was impossible. Ephraim McDowell, as early as 1809, successfully removed an ovarian cyst and treated the pedicle with a ligature, said in the first instance to have been cut from his buckskin mitten. By some fortuitous combination of circumstances, he anticipated the logical results of asepsis. But, while all credit should be given to this pioneer American abdominal surgeon, the fact should not be overlooked that the routine and successful use of the deep ligature, as well as of the deep suture, and especially the extension of the ligature beyond the function of tying good-sized vessels individually or in associated groups of arteries and veins, required the discovery of anesthesia and antisepsis as prerequisites.

At present, the primary application of the ligature to the umbilical cord is regarded as a matter of very minor, almost of domestic surgery, while its next important application to vessels of good size is considered rather as an incidental feature of most operations. Matters of greater consequence and subject to freer surgical discussion, with marked differences of individual opinion, are the ligation of pedicles, as of the spleen, kidney, ovary, or tumor; of stumps left after the resection of the vermiform appendix or diverticula; of broad expanses of tissue, as of solid organs from which portions have been excised, or of the omentum; while the internal suture is required in the most varied ways, often involving the principles of the ligature, in the most intricate operations of the modern gynecologist and abdominal surgeon.

The problem is no longer the comparatively simple one of direct hemostasis, but involves painstaking detail to prevent immediate damage from leakage of contents or secretions, to prevent the establishment of fistulæ and development of retention cysts; and when hemostasis is the prime object, it is seldom a problem of extreme difficulty, except when one has to deal with a solid mass of tissue, such as the liver, which is freely supplied with vessels too

minute for individual ligation. In practically all cases the abdominal surgeon has to anticipate the necrosis of an appreciable portion of tissue distal to the ligature, infection of which will not only prevent its ready absorption in accordance with physiologic principles, but will result disastrously, either in comparatively speedy death from sepsis or in a delayed and impeded recovery, often with a complete nullification of the primary object of operation.

The ideal treatment of an intraabdominal stump or pedicle demands that it shall be left in its original position and permanently and immediately closed inside the abdominal cavity, trusting absolutely to the efficiency and future harmlessness of the ligature. In certain cases this ideal treatment is obviously impossible and the stump must either be inclosed in the abdominal wound or allowed to extrude from it, or at least the abdominal wound must be left open provisionally, for the inspection and further care of the stump and ligature. Yet, in general, the internal ligature and, only to a less degree, the internal suture, present problems as far as possible removed from the orginal and simple requisites of the umbilical ligature, and far more difficult of solution than those involved in the purely hemostatic ligature of vessels in an amputated limb or exposed wound and in the ordinary external suture, in which case the foreign material is subject to inspection and may be readily removed.

Tersely stated, the requirements for ligature and suture material in the more difficult and more deeply seated fields of modern abdominal surgery, are:

1. Absolute sterility, not only at the time of use, but during the vicissitudes to which it is subsequently subject.

2. Adaptability to torsion and flexion, and to the formation of a secure knot.

3. Strength, not only at the time of its use, but subsequently.

4. Resistance to absorption during the process of union by cellular activity.

5. Ultimate complete absorbability, with the possible exception to be noted later.

Excepting the general principles of asepsis, which are included in the present problem, there is no other topic in surgery about which there is such unanimous agreement as to principle, and so wide a discrepancy of individual opinion with regard to details, than this one of suture and ligature material. This paradox is due to the fact that no readily available thread fulfils the requisites

mentioned, and that in any particular case, or in the experience of any particular surgeon, greater or less importance is laid upon the relative perfection and imperfection of any one material.

We may discuss first the comparatively rare cases in which a permanent ligature or suture is required. In the past, an exaggerated idea has been held of the length of time required for the healing of wounds by the formation of cicatricial tissue. Generally speaking, the requisite degree of restoration of integrity is reached within ten days or two weeks at the longest. In bone surgery, metallic sutures or pins of some dense material may be required for several weeks, but Sir William Macewen, in the address on surgery before the British Medical Association, 1904, incidentally alludes to the fact that such foreign bodies do not remain firmly fixed, even in bone, for a longer time than a few weeks. After this time the bone softens about them and their usefulness as retentives has passed, while nature is obviously making an effort at the extrusion of a foreign body. Gynecologists and abdominal surgeons are interested in this use of permanent sutures only in complicated cases, and in the treatment of the symphysis after symphysiotomy.

Granted that a permanent ligature or suture is indicated for operations upon the soft parts, it must be smooth, unirritating, aseptic, and susceptible to encapsulation. These requirements are met, as well as by any other material, by silver wire, though gold or any other ductile and non-corrodable metal may be employed. The writer questions, however, whether any metallic suture actually fulfils the theoretic indication of supplying a permanent support, or, rather, whether a permanent foreign support of this nature is ever really indicated. Almost the only instance in which the need and desirability of such support is now claimed is in the treatment of hernial rings. Sir William Macewen (*loc. cit.*) expresses himself strongly in this regard, and cites five cases in which gold wire had been used in the treatment of hernia. All of these cases apparently demonstrated the futility of the effort to erect a permanent metallic barrier. In one the physiologic tendency to extrude a foreign body was manifest, and in two others not only was the loop of wire loose in the aponeurosis, but the bowel had actually become entangled in it, and in one of these had already become perforated by impinging against the wire. Practically, the only indication for the use of silver or other metallic wire suture in abdominal surgery of the soft parts, is to afford strong union of the abdominal wall after section in insane

patients or those otherwise not amenable to ordinary restraints of motion and straining. No indication is afforded in abdominal surgery for the use of silver wire as a ligature in the strict sense.

Generally speaking, any animal or vegetable material imbedded in the living tissues will be ultimately absorbed by a species of cellular digestion, of whose exact nature we are in ignorance, unless (1) it is completely impregnated with some mineral matter; or unless (2) it is so large and unirritating as to become encapsulated permanently; or unless (3) it is or becomes infected with microorganisms, when (a) it will either be extruded by the well-known process of suppuration and sinus or fistula formation, or (b) the resulting sepsis will become general and will result fatally.

Silk has always been a favorite suture material and has had many advocates, even as a material for buried ligatures. On account of its flexibility, strength, smoothness, and unirritating qualities it fulfils admirably the second, third and fourth requisites of an ideal material. While not an absolute exception to the principle just enunciated, it is practically non-absorbable, and numerous instances are recorded of its recognition at necropsies or subsequent operation long after is implantation, as well as of its discharge through fistulæ and sinuses. While its sterility is readily secured by boiling five minutes, its strength is impaired even by a second boiling, and, owing to its free absorption of water, it becomes a favorable medium for bacterial cultures, so that stitch-hole abscesses are comparatively common after its use. For intestinal suture there is no material so reliable as silk, used in the form of small sterile filaments, not in the coarse twists or braids often sold for this purpose and for surgical use generally. A silk which will stand repeated boiling without marked impairment of strength has almost certainly been adulterated with vegetable fiber.

Vegetable fibers are occasionally employed for ligatures and sutures mainly in emergent practice, in the absence of more suitable material. As they present no marked advantages over animal material and have many disadvantages of their own, they will not be discussed in detail.

Silkworm gut is made by drawing out into a thread the fluid silk in the body of the worm about to spin its cocoon. This material is obtained in bundles of a hundred threads, each twelve to fifteen inches long. These are smooth, strong and springy, yet capable of being tied securely. Occasionally they break, especially if too much tension is placed on the knot while being tied. Like

silk, silkworm gut may be sterilized by boiling, and it is practically non-absorbable. On account of its polished surface it is unirritating, unless the sharp ends are buried, and the threads are readily withdrawn. It is an excellent material for tension sutures.

Kangaroo tendon has been exploited as a material for deep sutures and ligatures, especially in cases of hernia, in which a degree of permanence is desired. Numerous reports, however, show that it is often absorbed within a few days. It may be sterilized by boiling, but repeated boiling lessens its strength. Dorsett, at the meeting in 1902 of the American Association of Obstetricians and Gynecologists, reported two cases in which tetanus was traced to infection of this material Tetanus, though a rare complication of supposedly clean wounds, demands our serious attention, not only on account of the high mortality, but of the direct responsibility which attaches to the surgeon when it develops without accidental traumatism, but in a wound inflicted as a therapeutic measure. The United States Public Health and Marine Hospital Service published a bulletin in 1902 in which six cases of tetanus due to gelatin were studied. It was shown that brief boiling does not insure against infection with tetanus, but that it must be continued for at least half an hour or must be repeated.

The writer would emphasize the fact that thorough asepsis can be obtained in practice only by extemporaneous disinfection of all materials used. It is needless to state that surgeons are practically unanimous in the view that the most satisfactory method of obtaining sterility is by boiling prior to the employment of instruments and other accessories. While, theoretically, suture and ligature material may be sterilized long before use and maintained in a sterile state by immersion in antiseptics or by hermetic sealing, there are numerous practical obstacles to the perfection of an antiseptic technic dependent upon such materials. When prepared on a commercial scale, by comparatively unskilled and uninterested employees, errors in technique are inevitable. Even when prepared under the immediate supervision of the responsible surgeon, the opening of packages, the drawing of a thread through an opening in a receptacle, the almost inevitable contamination of such receptacles from exposure to the air of the clinic, or the waste of material and delay if the attempt is made to prepare material in just the quantity liable to be needed, all favor the plan of extemporaneous sterilization by boiling. Even elaborate processes of sterilization of catgut by immersion in sub-

limated ether, juniper oil, silver salts, dry heat of high temperature in paper packages, etc., have, in the writer's experience, not proved entirely satisfactory, as infection has occasionally developed. These methods undoubtedly produce complete primary sterility, but reinfection is likely to occur through some unforeseen error of technic, perhaps on the part of an assistant, in a small minority of cases it is true, yet in too large a number to satisfy surgical ideals. In experiments in which the writer participated at the University of Berlin, 1894-1895, it was found that reliable sterilization of previously infected suture and ligature material by sublimate required twenty days; whereas, even tetanus spores were killed by exposure in the steam sterilizer for three minutes in the majority of instances, and were positively killed by three similar treatments on alternate days.

For some unknown reason, possibly a predilection to tetanus on the part of the kangaroo, possibly by adulteration with sinew from the horse, which is notoriously liable to tetanus, kangaroo tendon has proved a notable, though still rare source of tetanus, while, so far as the writer can learn, such infection has never been traced to catgut, although it has been used a thousand-fold more often. Commercial catgut is prepared from the intestine of sheep, which are very little subject to specific infections, such as tetanus, tuberculosis, and the like. Catgut has long been a favorite suture and ligature material; it is cheap, easily obtainable and easily handled, and is not liable to contamination, except with the saprophytes and pyogenic bacteria. In considering it in the light of the five requisites for an ideal suture and ligature material, we find that it fulfils the second, third and fifth. It is, however, notoriously deficient in its resistance to absorption, so that even heavy catgut cannot be relied upon for deep sutures and ligatures without special preparation by impregnation methods; in its original state it cannot be boiled in water without being destroyed; even as ordinarily prepared to resist absorption, it cannot be subjected to extemporaneous disinfection by boiling without loss of strength and inhibition of water, so that it is with difficulty threaded into needles and handled. Chromicized and cumol catgut resist absorption, but cannot be boiled sufficiently for thorough sterilization without loss of consistency.

By the method which the writer has employed for a number of years, catgut is modified so that it may be boiled like silk, and is, therefore, rendered thoroughly dependable for deep sutures and ligatures without destroying its ultimate absorbability or inter-

fering with its natural adaptability for handling and tying. We may even gauge quite accurately the length of time for its absorption. This method was originally brought out by Hofmeister, and was introduced to the American profession by Nicholas Senn in 1896. It is so simple and reliable that anyone may prepare his own material, and so accurate that it may be adapted for an artificial support for a few days or a number of weeks, as required by the nature of the case, thus rivaling the claims that have been made for kangaroo tendon, and which, unfortunately, have not been altogether substantiated in the general experience of reporters.

The method of preparing catgut, as modified by the writer as the result of experimentation since 1896, is as follows: take dry catgut, which comes in strands ten feet long, carefully test for imperfections by passing through the hands and noting its strength and inspecting for weak points and irregularities, fasten one end to the end of a glass cylinder, for instance, an ordinary drainage tube which has a hole drilled near each end, wind snugly in a single layer, and fasten the other end similarly. Completely submerge in a 3-per-cent. formalin solution. The writer finds that only the sizes from No. 1 to No. 4 are necessary.

No. 4 is allowed to remain in the solution for 4 hours.

No. 3 is allowed to remain in the solution for 3 hours, 5 minutes.

No. 2 is allowed to remain in the solution for 2 hours, 15 minutes.

No. 1 is allowed to remain in the solution for 1 hour, 35 minutes.

The catgut is removed and immediately placed in running water for the same length of time that it has been in the formalin solution. It is then dried in the open air at ordinary temperature, labeled and put away for future use.

This process may be termed mercerizing, since the catgut thus prepared may be handled precisely like silk; it does not deteriorate by repeated boiling more than silk, it is pliable and easily and securely tied, and it differs from silk only in its ultimate absorbability. The reliability of boiling this material to secure sterility has been repeatedly tested by the writer clinically, by the absence of local septic complications, and has also been verified by bacteriologic tests by Dr. William G. Bissell, of the Buffalo Department of Health.

The approximate time for which material thus prepared may be depended upon to furnish support to the tissues is as follows:

No. 4, 7 days. No. 3, 5 days. No. 2, 3 days. No. 1, 36 hours.

While it has been the general object to secure a material which shall be absorbed as rapidly as possible, with regard to the nature of the case, there are conditions, such as hernia, in which it seems desirable to support and maintain the tissues in apposition for a long time. To secure this end, a 5 per cent. solution of formalin is employed instead of a 3 per cent. solution, and the gut is left in the solution for as long a time as is compatible with the preservation of a fair degree of flexibility. This time has been found to be approximately double that stated for the respective sizes of gut when treated by the 3 per cent. solution. If allowed to remain too long in formalin, the gut becomes brittle. In any case, the washing in running water is carried on for the same length of time used in the immersion in formalin solution. Number 4 gut, treated according to the latter specifications, will remain in the tissues for 4 to 6 weeks, but is subsequently completely absorbed. In large hernias of long standing, in which there is likely to be considerable traction on the fascia, No. 4 catgut will meet all expectations, not disappointing so frequently, as has commercial kangaroo tendon, by too rapid absorption or infection. If there is not too great separation of the fascia, No. 2 or No. 3 gut prepared by the second process, or No. 4 prepared by the first process, will be found amply resistant.

No. 1 gut prepared by the second process meets many indications. It may be used in surgery of the biliary or urinary bladder or their tracts with perfect safety, when a non-absorbable substance would probably become the seat of calcareous deposits.

In obstetric practice, in the performance of immediate repair of the perineum No. 3 or No. 4 gut, by the first process, is to be selected. In cases of long standing, where the muscles and fascia are widely retracted, the vagina is separated from the rectum, the levator muscles are exposed with their fascia and are united directly with No. 4 gut prepared by the second process.

A further advantage of the method here described is that it can be taught, not only theoretically, but by actual participation on the part of the student, and, owing to its extreme simplicity and the lack of complicated apparatus, it can be carried into practice by occasional operators at a distance from clinics, who may thus be made entirely independent of commerical sources except for a supply of raw material.

AMENORRHEA AND COMPLETE UTERINE PROLAPSE; REPORT OF CASES, WITH REMARKS.

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The two cases which form the basis of this report exemplify conditions with which those who are engaged in gynecological work are quite familiar, but which nevertheless are often so beset with difficulties that common ground as regards their management seems to be utterly unattainable. Somewhat regretfully, I must say that I have no new ideas to advance or hitherto untried methods of treatment to propose; but it seems to me that brief review of some elementary and fundamental facts would not be unprofitable. Moreover, certain practical points of general application have been emphasized during the course of treatment which I have carried out, and to these also I would direct attention.

C. T., 19 years old, single, came to the Franklin Square Hospital on Nov. 2, 1904, and gave the following history: menstruation appeared at 14, was regular, rather profuse, of three or four days' duration, but somewhat painful. It continued regularly for three years, but in the latter part of this period became more and more scanty. For the last two years she has not menstruated at all. There has been no leucorrheal discharge. Mother died from pneumonia and one sister from tuberculosis. Her own health has been uniformly good. She came to the hospital upon the advice of a physician to find out why she does not menstruate, and whether or not the menses will reappear. There has been no pain or inconvenience of any kind. The appetite has been good, but the bowels are usually constipated. Such a history, of course, brings forward the subject of amenorrhea. This condition, as is well known, is due to a great variety of causes, local and general. Among the local causes are imperfect development or absence of the uterus and its appendages, which may coexist with perfect general development of the body. Atrophy of the endometrium, from which as we know the men-

strual flow is chiefly derived, or of the uterus as a whole, is also an important local etiological factor. As regards the ovaries, atrophic changes resulting from inflammation, cystic degeneration and ordinary ovarian cysts may be found to be coincident with absence of menstruation. Among the general causes are included such acute infectious diseases as typhoid fever, scarlet fever, and diphtheria, and such well-known chronic maladies as tuberculosis, anemia, chlorosis, diabetes, nephritis, malaria and syphilis—the amenorrhea in the last named conditions being I think properly regarded as nature's effort at conservatism.

Bearing these facts in mind, and not wishing to make a vaginal examination unless it was found to be necessary, I sought to eliminate the chronic diseases just mentioned. A careful general physical exploration was made, supplemented by an examination of the sputum, the blood and the urine. The results were negative in each instance. I then made, or rather attempted to make, a bimanual examination of the pelvic organs. The vagina was quite shallow and the cervix small. I could not satisfactorily palpate the uterus owing to nervousness and resistance on the part of the patient. The fact that she had already menstruated precluded the possibility of absence or maldevelopment of the internal generative organs as well as of atresia of the genital tract. I then concluded to do what I fear is too often done as a mere matter of routine and without sufficient reasons—namely, to dilate and curet the uterus. Dilatation, however, is conceded to be a proper procedure under such conditions, and my purpose in curetting was to obtain scrapings for microscopic examination. Before proceeding to do this, and in accordance with an invariable custom in such cases, I made a careful bimanual examination under anesthesia and was somewhat surprised to find in the right ovarian region a semi-elastic, well rounded mass about as large as a croquet ball. This was diagnosticated as an ovarian cyst. Upon opening the abdomen, it was found to belong to the intraligamentary or extraperitoneal variety and was carefully peeled out from its bed between the layers of the broad ligament. The left ovary was quite rudimentary and seemed also to be entirely enclosed between the anterior and posterior peritoneal reflections. The uterus was undersized. This operation was followed by dilatation and curetment, and subsequent examination of frozen sections made from the curetted particles showed peculiarities similar to those normally occurring in the endometrium at the time of the menopause. These find-

ings, I take it, satisfactorily explained the absence of menstruation and enabled me to say that in all probability the function would never be re-established.

Mrs. M. W., 40 years old, married, was admitted to the hospital on October 25, 1904, and made substantially the following statements: menstruation began at sixteen, was regular, profuse, painless, and of four days' duration. For the last four or five years has had menorrhagia, and for several months there has been an almost continuous muco-sanguineous flow from the vagina. Has been married twenty-two years, and has had nine children, some of them of very large size. The youngest child is about four years old. There have been no instrumental deliveries, and the puerperia have been uncomplicated. Leucorrhea has for many years been profuse and constant. Family and personal histories negative. Has suffered from headache and backache for about eleven years; and for four years, or since the birth of the last child, has noticed the "falling of the womb." For two or three years there has been gradually increasing dysuria and difficult defecation. Is always constipated, but has learned to assist herself during defecation and micturition by pressing against the posterior and anterior vaginal walls. Has had no treatment, but was examined by a physician who told her that she had a cancer of the womb and she has come to be treated for that disease. I did not hesitate to examine this patient, and found by inspection that it was a case of complete uterine prolapse, with the uterus practically outside of the vulvar orifice. Upon further examination with the sound in the bladder and the finger in the rectum, I could easily demonstrate a well-marked cystocele and rectocele. The vagina was, of course, inverted, and upon each lip of the servix there was an ulcer of considerable size. These had evidently been mistaken for malignant disease, but they had none of the characteristics of malignancy, and one could easily say that they were simply examples of the ordinary decubitus ulcers. This patient was at once put upon the usual preparatory treatment for operation, consisting of rest in bed, large vaginal douches of warm bichloride solution and the daily assumption of the knee-chest position. The ulcers responded quickly to the douches and the application of a few iodoform tampons. At the time of operation, I again preceded the surgical steps which I thought appropriate by a deliberate bimanual examination, and could easily feel through the inverted vaginal walls and the protruding pelvic peritoneum a tumor as large as a hen's

egg. This also was found to be an ordinary ovarian cyst. The surgical work performed included a series of six distinct procedures, as follows: dilatation and curetment, anterior colporrhaphy, colpoperineorrhaphy, cystectomy, resection of the left Fallopian tube and ventrofixation. The anterior colporrhaphy consisted of a deep excision of the vaginal wall, diverging from the internal urethral opening up to the lateral fornices, and hugging the cervix in a crescentic or semicircular fashion. It was based upon the Dudley type of operation which appeals to me as the most rational and scientific procedure for the cure of cystocele that has yet been devised. The rectocele was so pronounced, and the vaginal outlet so markedly redundant, that I did not believe the ordinary Emmet perineorrhaphy would suffice, so I substituted a Garrigues-Hegar operation, extending the sides of the denudation well up on to the lateral vaginal walls. Having opened the abdomen and removed the cyst, and realizing the unsatisfactory results and the recurrences following so large a number of cases treated by plastic work alone, I removed about three or four centimeters of the left Fallopian tube, covering the stumps with peritoneum, and afterwards fixed the uterus to the abdominal wall. If the removal of a portion of the upper free border of the broad ligaments, including the Fallopian tubes, has been practised in the treatment of uterine prolapse, I am not aware of it; but I should certainly have done so in this case, but for the presence of the ovarian cyst. And I should have done so with the idea, not merely of rendering the woman sterile but also of taking up the slack in the redundant peritoneal folds, and making the broad ligaments more distinctly suspensory in character.

I would add to this report a few words bearing upon the deductions which I think may reasonably be made from these and similar cases. In the first place, sufficient stress is not laid upon the importance of careful bimanual examinations conducted in connection with the so-called minor operative procedures on the female genitalia. I have repeatedly operated for such conditions as pyosalpinx, fibroid tumor, and extrauterine pregnancy in patients who had previously been subjected to a minor operation without the far more important and far more serious intraperitoneal trouble having been discovered. It is evident that in most cases of this kind minor surgery is distinctly contraindicated, and it is equally clear that much suffering and danger could be avoided by the effort at least to recognize conditions necessi-

tating major operative work, not to speak of the undesirability of repeated anesthetization.

The first case spoken of in this report suggests the probability of a direct relationship between ovarian cysts and amenorrhea; and, if such relationship exists, it should furnish an interesting guide in the differential diagnosis of the cystic growths affecting the ovary. Only the so-called glandular oöphoritic cysts which destroy the substance of the ovary, and affect directly its egg-bearing portion could be expected to have so pronounced an influence in lessening or stopping the menstrual flow. I find little reference to this subject in the textbooks. My own experience in the limited number of glandular cysts which I have seen has been distinctly in favor of this theory; for in most of them there has been a decided diminution or a cessation of the menstrual discharge.

The late William R. Pryor, however, speaks plainly and directly on this subject in the following language: "Early in the history of glandular ovarian cysts amenorrhea in half the cases becomes a prominent symptom, and this is observed in the young as well as in those of middle life. It occurs before marked depreciation in general health ensues, and therefore can only be attributed to the influence of the growth upon the ovarian structure. It is found whether the growth be unilateral or upon both sides. Parovarian cysts do not produce it." As pertinent to this subject, I would also ask if cases such as these do not give force and strength to the contention that the ovaries exercise a dominating influence upon the menstrual function?

In reference to so-called uterine prolapse, it would perhaps not be uninteresting to refer briefly to the indications to be met in the operative treatment of this form of hernia. For it is essentially a hernia of the uterus, the bladder, the rectum and in some instances the small intestines, the hernial sac being formed by the inverted vaginal walls. Without entering into a discussion of the various factors concerned in retaining the uterus in its normal position, it is manifest that the relation of the uterine axis to that of the vagina, the restraining influence of the utero-sacral ligaments and the uplifting or sling-like action of the levator ani muscle are chiefly concerned in preventing downward displacement of that organ. Relaxation of the utero-sacral muscles permits the cervix and the vaginal vault to drop forward, while separation of the fibers of the anterior portion of the levator and accompanying injury to the pelvic fascia allow the vaginal

outlet to be displaced backward, thus bringing the uterine and vaginal axes into coincidence and exposing the uterus to the direct influence of intraabdominal pressure. At the same time the injury to the pelvic floor permits the gradual formation of cystocele and rectocele, in response to the constantly increasing difficulty of emptying the bladder and the rectum, adding, in this way, to the pressure from above, a distinct traction from below. From these considerations, it appears that the indications are to replace the cervix in its normal position in the hollow of the sacrum and to lift the lower portion of the vagina up under the pubic arch. The fulfilment of these indications will replace the vagina in its normal oblique position and direct the corpus uteri forward in its natural anteversion. Theoretically, therefore, shortening of the utero-sacral ligaments should fulfil the former purpose. As a matter of fact, these post-uterine supports are commonly found so stretched and attenuated that they cannot be restored to functional usefulness. The operation to which I have referred, having for its object not only the correction of the cystocele, but the replacement of the cervix in an upward and backward position where it would normally be held by the uninjured utero-sacral muscles, seems, as I have said, to be the most rational substitute. As to the latter indication—that of lifting up the perineum and the posterior vaginal wall—Emmet's operation unquestionably has a sound anatomic and scientific basis; but the performance of this operation, as it should be done, is often difficult if not impossible. In the case which I report, it seemed inapplicable by reason of the redundancy of the vaginal walls and the evident atrophy which the muscles of the pelvic floor had undergone.

My experience in the operative treatment of procidentia has been far too limited, to enable me to speak from personal observation of the comparative merits of the numerous plastic procedures which have been devised and practised for the relief of this condition. I have no hesitation, however, in saying, in the light of our present knowledge of the anatomy and mechanism of the pelvic floor, that operations of the Stoltz type and all others involving simple superficial denudation of the vaginal walls should possess historic interest only, and should be unreservedly discountenanced. Their effect has been to offer a weak mechanical obstacle to the descent of the uterus, and the necessity of restoring the normal relations of the uterus and vagina seems not to have been appreciated. Moreover, many of the procedures have

undoubtedly done harm in shortening the vaginal walls and placing the cervix in the most favorable position for a recurrence of descent. Unfortunately, the ultimate results of all plastic surgery in the vagina are far from salutary in many instances. Evidence of this is afforded not alone by the collection of large numbers of cases in which such work has been performed, but by the numerous new devices and operative procedures which are constantly being tried. Vaginal hysterectomy has been practised in procidentia occurring in old women, in whom prolonged anesthesia is to be, as far as possible, avoided, and whose tissues do not respond so well to plastic operations. In such cases the uterus, as we know, is commonly a light and insignificant structure, and is but one, and that the least important, of the organs involved in the hernial descent. Numerous cases have been reported in which, after the removal of the uterus, the prolapse of the adjacent organs became worse than before. The operation does not cure the cystocele and rectocele, and, to be effective, must be supplemented by colporrhaphy. I fail to see the advantages of this method, and the field of its usefulness must be a very restricted one indeed. I prefer to use the uterus for purposes of suspension or fixation. The objections to the latter operation are of course serious in young women, but the procident uterus is found for the most part in the middle-aged and elderly, who, if not already sterile, are quite willing to be made so. I believe that when the stage of experimentation shall have been passed, the operative treatment of uterine prolapse will utilize the principle of suspension, and that shortening of the utero-sacral supports, reefing or resection of the broad ligaments, and abdominal hysteropexy and hysterorrhaphy will have a permanent place among the reliable surgical resources available in the correction of this interesting and difficult displacement.

JOHN KNOWSLEY THORNTON, M.D., C.M. EDIN.

Born January 15, 1845—Died January 3, 1904.

In Memoriam.

JOHN KNOWSLEY THORNTON, M.B., C.M., Edin.[1]

By WILLIAM WARREN POTTER, M.D.,

BUFFALO, N. Y.

AGAIN this Association is called upon to chronicle the death of one of its honorary Fellows—one who was also one of the most distinguished pelvic and abdominal surgeons of his day. Had his health remained good it is more than probable his name would have been foremost among the many distinguished British surgeons in the special field of his choice.

Knowsley Thornton, the name by which his professional friends best knew him, was born at Northampton, January 15, 1845, and died at his home, Hildersham Hall, Cambridge, January 3, 1904, having very nearly reached the age of fifty-nine years. His father, Rev. John Thornton, became head master of Kimbolton School, and was for thirty years vicar of Aston Abbotts. The son was educated at Rossall, spending his earlier years after graduation in teaching and clerical work. He became a medical student at the age of twenty-two, pursuing his studies at Edinburgh, where he graduated in 1871. He then became house surgeon to Joseph Lister at the Edinburgh Royal Infirmary. In a speech at a dinner of the Medical Society of London a few years ago, Mr. Thornton expressed the opinion, based on his personal experience, that there were advantages in entering the medical profession relatively late in life. However that may be, he advanced at comparatively a rapid rate.

Knowsley Thornton was a strenuous advocate of antisepsis, due, no doubt, in a large measure to his intimate professional relationship to Lord Lister, the great apostle of antiseptic surgery. He was a stickler for all its details and even clung to the spray after it had been discarded by most other operators. Though admitting that carbolic poisoning frequently retarded convalescence,

[1]For much of the material of this memoir the author is indebted to the *British Medical Journal.*

he yet insisted that "antisepsis" was better than "asepsis," contending for this principle with speech and pen in societies and journals, antagonizing those who abandoned carbolic solutions and the spray.

One of the strong points in Mr. Thornton's operative career was his great care in the after-treatment of his patients. He was a man of infinite attention to details, watching his patients after operation with an eagle eye and caring for them with an attentive hand. He seemed never to grow tired of doing those small things that seem beneath notice to some, but which, nevertheless, contribute immensely toward success. Though an extremely careful operator, he was yet bold and never surrendered in the face of complications; but, on the other hand, these rather stimulated his energies. He was resourceful at the operating table, often finding his way out of difficulties well nigh insurmountable. The writer has seen him make total hysterectomy for myofibroma, with never a word escaping from his lips during a complicated operation, and never manifesting anxiety until the dressings were finally completed, when the pearls of perspiration could be discovered standing on his forehead, just as he turned to go about some little side matter with a quiet simplicity that was as charming as it was effective.

After graduation Mr. Thornton engaged in private practice for about two years at Ford, in Northumberland, near the Scottish border; but in 1873 an opportunity offered which shaped his whole professional career. Dr. William Thompson, his personal friend, determined to leave London, going to Algiers to practise in the South. Through his introduction Mr. Thornton became surgeon to the Samaritan Free Hospital and assistant to Sir Spencer Wells in his private practice. It was at this hospital, which his master had made famous, that Mr. Thornton also was raised to distinction. Sir Spencer had established ovariotomy but was loath to accept some of the more advanced and radical operations. Mr. Thornton, on the other hand, pushed forward and made the Samaritan Hospital the scene of the most modern operative methods.

Another of his qualities that has left its impression was a gift to train assistants. He required ability in the first place, and then developed his junior to be almost as perfect an operator as himself. He was intolerant of remarks during an operation, and more than once has been known to reprove a talkative bystander of distinction. While he was an expert ovariotomist and did hys-

terectomy with skill, he yet made a larger fame as a pioneer in renal surgery. His reputation was greatly increased, too, by his Harveian Lectures on the surgery of the kidney, delivered in 1889. He was a strenuous advocate of the abdominal incision as opposed to the lumbar, and his discussions with Morris and others on this topic demonstrated the advantages that each possessed under differing conditions.

Mr. Thornton played an important part in establishing the surgical treatment of gallstone disease on a firm basis, and likewise performed a similar service with reference to the surgery of the liver. Again, he was a pioneer in the surgery of the spleen, and his papers on these several subjects served to enrich the literature of that period. With all this record of achievement on what were then new lines, though now accepted procedures, he was compelled to reach it through a pathway of misery and suffering that would have dismayed a less resolute soul. He deserved success on account of the qualities that he possessed which bring it; and, it must be confessed, he prospered greatly; but he was denied that physical peace and comfort which belong to one devoted to the welfare of his fellowmen.

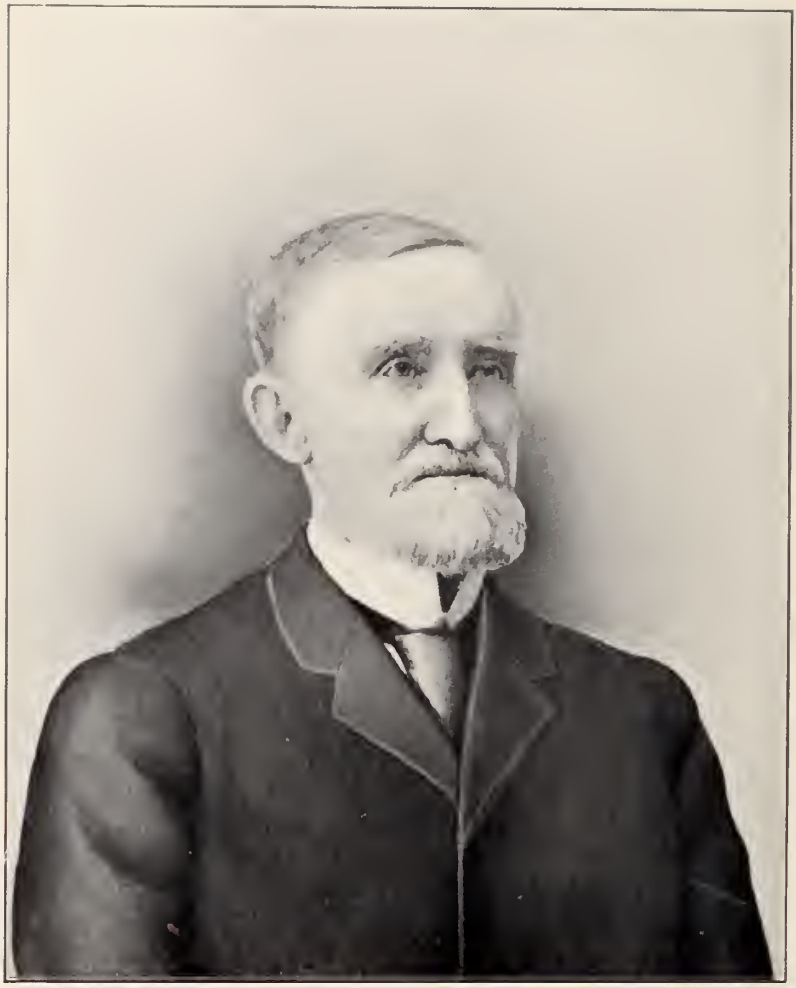
Knowsley Thornton was, from the age of eighteen, afflicted with recurrent attacks of gout which sometimes greatly embarrassed his work. Added to this, there was distressing sickness in his own home, and he admitted to a friend at the time he resigned his hospital appointment that, though having earned success it was not enjoyable, for he was often in pain and never well. He gave up his hospital work in 1891, but continued his private practice for some years afterward. He fell severely ill in 1896, and his strength became much reduced by repeated struggles with influenza complicated by gout. Finally, in 1898, he retired from practice altogether and removed to Hildersham Hall, near Cambridge, where he passed his later years. Here he worked in his garden and farmyard under the influence of which his health improved for a time, but of late he suffered much from peripheral neuritis which gradually undermined his resisting power; and so his spirit vanished on that fateful January fourth, nineteen four.

Mr. Thornton did much work for medical societies and was president of the London Society in 1890; he also took part in many discussions at the annual meetings of the British Medical Association and was a vice-president of the Section of Obstetrics at the annual meeting in London in 1895. He married first Miss Patterson, by whom he had a son,—who holds an appointment in

South Africa,—and two daughters; his second wife was the Hon. Mary Windsor Clive, by whom he had one daughter; both survive him.

Knowsley Thornton, as we have intimated, was an authority on the abdominal surgery of his time. He was a bold but careful operator; he was straightforward, without deception or boastfulness; and he was combative but, withal, a benefactor and a man devoted to the advancement of the cause to which he gave his life's best work.

[Mrs. Thornton kindly sent the picture—his latest—from which Mr. Thornton's portrait is made.]



JAMES McFADDEN GASTON, M.D.

Born December 27, 1824—Died November 15, 1903.

In Memoriam.

JAMES McFADDEN GASTON, M.D.

By WILLIAM WARREN POTTER, M.D.,

BUFFALO, N. Y.

WITH surprising frequency of late has it been our duty to record memorial biographies of our Fellows, ordinary or honorary, and the painful office is now being performed for one of our most respected honorary members.

James McFadden Gaston, son of Dr. John Brown and Polly Buford Gaston, was born near Chester, S. C., December 27, 1824, and died at his home at Atlanta, Ga., November 15, 1903, in the seventy-ninth year of his age. His preliminary education was obtained at the common schools of his native county and at the academy at Russell Place in Kershaw district. At the age of sixteen he entered the Smith Carolina College at Columbia, from which he received the degree of A.B. in 1843. In the same year he entered upon the study of medicine under the direction of his father at Chester. He took his first collegiate course at the medical department of the University of Pennsylvania; his second course was taken at the Medical College of the State of South Carolina, from which he received his doctorate degree, March 6, 1846. Immediately after graduating in medicine he entered upon practice in partnership with his father in Chester district, S. C., which relation continued until 1852, when he removed to Columbia.

Dr. Gaston joined the Confederate Army at the outbreak of the Civil War, beginning service in the Columbia Grays. His first service was at Morris Island, where he was appointed chief surgeon of the South Carolina forces, commanded by Brigadier-General M. L. Bonham. When General Bonham's command went to Richmond and was subsequently sent to Manassas, Dr. Gaston became medical director of that department, and was attached to the staff of General P. G. T. Beauregard. He was afterward, at his own request, transferred to the Third Brigade of South Carolina Volunteers, commanded by Brigadier-General

R. H. Anderson, and when the latter became Major-General, Dr. Gaston was promoted to chief surgeon of Anderson's division, in which capacity he served during the Virginia and Pennsylvania campaigns of 1863.

Soon after the battle of Chickamauga, Ga., in September, 1863, the Confederate surgeon-general, by special order, sent Dr. Gaston to that field, where he assisted the medical director of hospitals, Dr. S. H. Stout, in the relief of the wounded. The hospitals became very much congested during the Chickamauga campaign, which included the secondary operations around Marietta, and after this duty was over Dr. Gaston was ordered to report to the medical director of hospitals in General Beauregard's department. He established a general hospital at Fort Gaines, Ga., and subsequently was placed in charge of a general hospital at Fort Valley, Ga., remaining on this latter service until the war terminated.

Immediately after the cessation of hostilities in 1865 Dr. Gaston went to Brazil. At Rio de Janeiro he entered the Imperial Academy of Medicine, from which he received the ad eundem degree, entitling him to practise medicine in the Empire of Brazil. He declined the offer of consulting surgeon to the military medical staff of that country, and in 1867 removed, with his family, to the province of San Paulo, where he practised for six years in the interior towns. In 1874 he removed to Campinas, in which city he practised his profession until 1883, when he returned to America and took up his permanent residence at Atlanta. Here he soon opened a surgical infirmary which he conducted as an adjunct to his surgical practice, and in 1884 was elected professor of the principles and practice of surgery in the Southern Medical College of Atlanta. He retained his relations with this institution during the remainder of his life, taking rank among the famous surgical teachers of the country.

During his residence of eighteen years in Brazil Dr. Gaston acquired a thorough knowledge of the Spanish and Portuguese languages which served him in good turn in translating South American literature for various medical publications in this country. Dr. Gaston performed early experiments on dogs to establish communication between the gall-bladder and duodenum; he also devised the abdominal spring pessary upon which the McIntosh instrument was constructed. Dr. Gaston was a contributor to medical and surgical literature, some of his papers receiving high consideration, notably those relating to the treatment of

carbuncle, on erysipelas, yellow fever inoculation, appendicitis, ovariotomy, traumatisms of the chest, and the surgery of the gall-bladder and ducts.

Dr. Gaston was a member of the American Medical Association, chairman of its surgical section, 1892; of the Southern Surgical and Gynecological Association, president in 1892; of the American Academy of Medicine, president in 1895; of the Medical Association of Georgia; and of the American Surgical Association.

Dr. Gaston married, November 2, 1852, Miss Sue G. Brumby, daughter of Professor R. T. Brumby, of the University of South Carolina, Columbia. Of their ten children, the following are living: Mrs. Mary Bufford Cresham, Mrs. Keziah Brevard Kolb, Mrs. Nannie Thornwell Blackford, Mrs. Kate Shaw, Mrs. Susan Eloise Gay, and Dr. James McFadden Gaston, Jr.

In Memoriam.

JOHN MILTON DUFF, A.M., M.D.

By W. J. ASDALE, M.D.,

PITTSBURG, PA.

JOHN MILTON DUFF was born at Newlinsburg, Westmoreland County, Pennsylvania, on October 16, 1849, and died at his home in Pittsburg, Pennsylvania, May 14, 1904, aged fifty-four years.

The disease (cancer) which terminated his life had existed during a period of nearly ten years, appearing as a slowly progressing epithelioma of the lower lip—extending to other parts, making exceedingly rapid progress in the latter months of his life. He was a man of tireless energy; a most indefatigable worker; sustained by extraordinary professional enthusiasm, he commenced and completed his last lecture-course before the classes in the Western Pennsylvania Medical College, dying less than three weeks later.

Dr. Duff, while yet a youth, possessed a remarkable physical prowess. At fourteen he was of man's stature and weight; the Civil War then existing in the United States, constituted for his intensely patriotic nature an irresistible call to the nation's defense; his parents consenting, he enlisted in Company B, One Hundred and Seventh Pennsylvania Volunteer Infantry, serving with that regiment until its discharge from the service.

The younger Duff's early ambition was to become, like his father—Dr. James H. Duff—a physician. Dr. Duff, the elder, was an alumnus of Jefferson Medical College of Philadelphia of 1846. The early mental training which the subject of this sketch received he obtained in the common school of his home vicinity. A diligent and apt pupil, endowed with an unusual retentive memory, at eleven years of age he was enrolled a student at the "Laird Institute," an academy at Murraysville, Pennsylvania, where he remained until his enlistment into the army. Upon returning home, at the close of the war, he re-entered the "Institute," and, later, engaged in teaching in the public schools. His collegiate course was taken in the Western University of Penn-

JOHN MILTON DUFF, A.M., M.D.

Born October 16, 1849—Died May 14, 1904.

sylvania, which he entered in 1868 and from which he graduated in 1872 with the degree of A.B. He received his Master's degree in 1875, and his *Alma Mater*, in 1897, conferred upon him the degree of Doctor of Philosophy; in 1902 he was elected a member of the Board of Trustees of the University. His medical studies were commenced under the tutelage of his father; later, he became a student at the Jefferson Medical College of Philadelphia, where he earned the degree of Doctor in Medicine in 1874.

Dr. Duff began practice in Philadelphia, but soon returned to Western Pennsylvania, locating first in the vicinity of Pittsburg, and later moving into the city itself, living first in the South Side section, then in the East End. He continued to reside in that section of the city while he lived, residence there bringing him within convenient distance of the medical college and the different hospitals with which he was connected and where most of his work had to be done.

Soon after the incorporation and organization of the Western Pennsylvania Medical College in Pittsburg, in 1886, Dr. Duff received appointment to the professorship of Obstetrics, to which was added for him in 1896, "and Associate to the Chair of Diseases of Women." These appointments in the college he held thereafter continuously until his death. In his capacity as teacher in the medical college he held also the positions of obstetrician-in-chief in the Reineman Maternity Hospital, and that of gynecologist at the Kauffman Clinic—these two institutions being properties of the medical college. Dr. Duff was surgeon and gynecologist in the South Side Hospital, Pittsburg. Of this hospital it can truthfully be told that, mainly, it has owed its birth and its existence to Dr. Duff's generosity and good works, developed out of the desire on his part to improve the conditions and provide better care for the sick and injured among the indigent and underpaid laboring classes of this section of the city. He continued in its management until his death.

Dr. Duff also was gynecologist at the Western Pennsylvania Hospital during a number of years, and consulting gynecologist at the Passavant Hospital at the time of his death.

Dr. Duff became a member of his home county (Allegheny) Medical Society in 1880 and its president in 1895; president of the Pittsburg Obstetrical Society in 1891; member of Pennsylvania Medical Society; of the American Medical Association; of the Mississippi Valley Medical Association; the Lehigh Medical

Association; the Tri-State (Maryland, West Virginia and Penn.) Medical Society; Fellow and ex-president of the Pittsburg Philosophical Society; Fellow of the American Academy of Medicine; and Fellow (1892) of the American Association of Obstetricians and Gynecologists, being member of its Executive Council, 1898-1900.

He held honorary membership in the Springfield (Mass.) Medical Association; also honorary membership in the following-named county medical societies in the State of Pennsylvania: Westmoreland, Indiana, Blair, Washington, and Elk. He was a frequent contributor to the many medical societies and kindred scientific bodies to which he belonged; he was widely known and popular as a lecturer and skilful as an operator; but Dr. Duff was never better placed, more attractive nor more to his own liking than when enjoying an opportunity to employ his oratorical and forensic abilities, and provided occasion to pronounce in choice diction those elegantly constructed and beautifully rounded periods, and brilliant and effective rhetorical flights, which he so well knew how to make potent in debate. Those who have been his auditors cannot soon forget Dr. Duff's certain gifts and accomplishments along this line. He was a man of intensely sympathetic nature; warm in his friendships, and generous to a fault.

His family lineage was Scotch, and Presbyterian in religious faith, to which tenets he remained consistently adherent throughout his life. He married, November 7, 1878, Miss Jeannette E. Kirk, who survives him; his children are five—three sons and two daughters. One of the sons, Dr. James H. Duff, succeeds his father in the practice of medicine.

Dr. John Milton Duff's reputation was broad and well-based; his character bore no stain. His professional friends were a host, and his patrons many and devoted.

HENRY DOWNER INGRAHAM, M.D.

Born December 30, 1841—Died May 23, 1904.

In Memoriam.

HENRY DOWNER INGRAHAM, M.D.[1]

By WILLIAM WARREN POTTER, M.D.,

BUFFALO, N. Y.

Dr. Henry D. Ingraham died at his home, 405 Franklin street, in the city of Buffalo, N. Y., Monday, May 23, 1904, after an illness of several months, aged sixty-two years. His condition, however, had not been regarded as critical till about two weeks previous to his death, when he began to decline rapidly. On May 21 he became comatose and remained in that state till he died. Few knew of his serious illness, and the news of his death was a great shock to a very large circle of friends and patients.

Henry D. Ingraham was born December 30, 1841, at Lebanon, N. H., and was the son of Marlin and Betsy (Hoyt) Downer, of that place. His mother died when he was eleven weeks old, and he was adopted by Mr. and Mrs. Eber Ingraham, whose name in after life he took. Later the Ingrahams moved to Arcade, Wyoming County, N. Y., where he received his preliminary education at the common schools and at the seminary then flourishing at that place. He fitted himself for teaching, which occupation he followed for several years. In 1863 he began the study of medicine under the preceptorship of Dr. Lucius Peck, of Arcade, and graduated from the University of Buffalo February 21, 1866.

After his graduation Dr. Ingraham began the practice of his profession at East Randolph, Cattaraugus County, N. Y. He remained there but a short time when he entered into partnership with Dr. William Smith, of Kennedy, Chautauqua County, N. Y. In this place Dr. Ingraham enjoyed a large and lucrative practice. In 1881 he located at Jamestown, N. Y., but after three months came to Buffalo, where he soon acquired a large following, and where he became an important factor in the professional and social life of the city.

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[1] The contributor acknowledges his indebtedness to Dr. A. A. Hubbell, Buffalo, for the data on which this memorial is written.

Dr. Ingraham was a progressive man, and availed himself of various opportunities to advance his attainments in his chosen field of work. In 1874-5 he took a post-graduate course in New York, and in 1879-80 he spent a year in Philadelphia under the instruction of Professors Goodell and Baer. He visited Europe in 1890 and studied under the great masters of gynecology, and particularly under Professor Leopold, of Dresden. When the Medical Department of Niagara University was organized in 1883, he was one of the first to take part in it, and was a member of the original medical faculty, occupying the chair of gynecology and pediatrics. This position he held till the faculty was merged with that of the Medical Department of the University of Buffalo in 1898, when he was made clinical professor of gynecology and diseases of children in that institution. This position he occupied till 1902, when he resigned. In 1883 he was elected gynecologist to the Buffalo Hospital of the Sisters of Charity, and for fifteen years he served the institution with the greatest fidelity and credit. He was especially instrumental there in organizing and developing the training school for nurses. After retiring from the Sisters Hospital in 1898, he served the Riverside Hospital as gynecologist till his death. He was also gynecologist to the Erie County Hospital.

Dr. Ingraham was not only an efficient teacher and a faithful hospital attendant, but he was active in the work of medical societies. He was a member of the American Medical Association, of the state and county associations, of the Buffalo Academy of Medicine, and the Medical Union, being president of the latter at the time of his death. He was not a prolific writer, and yet he contributed numerous papers to the leading medical journals of the country, setting forth the results of his ripe and extended experience. Among his writings are the following: "Intubation of the Larynx" (Buffalo Medical Journal, June, 1887); "Progress in Medicine" (Buf. Med. Jour., October, 1888); "Treatment of Uterine Fibroids by Electricity" (Trans. of the N. Y. State Med. Assn., 1889); "The Purse String Operation for Cystocele, with a Report of Cases" (Medical News, Phila., September 5, 1891); "Report of a Case of Ectopic Pregnancy" (Med. News, Phila., December 19, 1891); "Nerve Counterfeits of Uterine Disease" (Buf. Med. Journal, March, 1892); "Report of Three Unusual Cases" (N. Y. Journal of Gynecology and Obstetrics, September, 1892); "Ectopic Pregnancy" (Trans. of the N. Y. State Med. Assn., 1892, and also N. Y. Journal of Gynecology

and Obstetrics, January, 1893); "Uterine Fibroids, Some Facts in Regard to These Neoplasms" (Buf. Med. Jour., September, 1893); "Some Facts in Regard to Uterine Fibroids" (American Journal of Obstetrics, Vol. XXXVIII, No. 5, 1898); "The Uterus: Spontaneous Rupture of Its Body During Labor" (Jour. Amer. Med. Assn., July 29, 1899); "Jaundice Following Abdominal Section" (American Journal of Obstetrics, Vol. XLII, No. 5, 1900); "Personal Experience with Uterine Fibromyomata" (Trans. of the Amer. Assn. of Obstetricians and Gynecologists, 1901); "A Plea for the Early and Correct Diagnosis of Ectopic Pregnancy" (Jour. Amer. Med. Assn., August 23, 1902); "Hydrops Tubæ Profluens" (American Gynecology, February, 1903).

Dr. Ingraham was twice married; first, on October 19, 1871, to Miss Mary A. Langdon, of Kennedy, N. Y., who died in 1873; and, second, on September 16, 1885, to Mrs. Lucia T. Sprague, of Jamestown, N. Y., widow of the late Albert L. Sprague, Lieutenant in the United States Navy. Mrs. Ingraham and her daughter, Katherine Tiffany Sprague, survive, as also do three sisters and several nieces and nephews, among the latter of whom is Dr. Henry C. Buswell, of Buffalo, N. Y.

In the death of Dr. Ingraham this Association loses a highly respected Fellow, and the medical profession a distinguished member. He was a man of sterling and manly qualities, both of mind and heart. His clear perception, his cool accurate judgment, his unwavering integrity, his unflagging fidelity, together with his whole-heartedness and cultivated intellect, made him one of the most trusted of physicians as well as a desirable friend.

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